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Seismic Refraction Report

for

ICF/SRW Associates
Dorney Road Landfill
Project 30527-012

February 8, 1988

vibra-tech engineers, inc.

AR300988

FEB 12 1988

Seismic Refraction Survey

ICF/SRW Associates
Dorney Road Landfill — Project 30527-012
Lehigh County, Pennsylvania
February 10, 1988

Introduction

A seismic refraction survey was carried out by Vibra-Tech Engineers at the Dorney Road Landfill Site in Lehigh County, Pennsylvania. The survey was authorized by ICF/SRW Associates and the field work was carried out between December 21, 1987 and January 9, 1988.

The purpose of the survey was to provide subsurface, geological information as part of ICF/SRW Associates ongoing geotechnical study at the Dorney Road Landfill Site.

Scope and Conditions of Study

A total of 11,270 linear feet of seismic profiling was completed for this project. 5980 l.f. of profiling was done around the perimeter of the landfill, and 5290 l.f. was done within the landfill site.

Standard shallow seismic refraction techniques were used for this survey. A twelve channel, EG&G Geometrics Model 1225 seismograph was used to record the field data. A small amount of explosives was used as the seismic energy source. On each of the traverse lines, spreads of twelve geophones, with twenty-foot spacing between geophones, were placed along the ground surface. At the beginning, middle and end of each spread, and at 115 and 135 foot offsets from either end of the spread seismic energy was transmitted into the ground. The travel time of the seismic energy, from the source point to each geophone, is stored in RAM memory, and then printed out on an electrostatic printer contained in the Model 1225 system. The twelve geophone was then moved ahead along the traverse line, the last geophone of the previous spread becoming the first geophone of the new spread. This process was repeated until the end of the traverse line was reached. Photocopies of the raw field data is enclosed in the appendix of this report.

Limitations of Survey

Geophysical methods are indirect methods of subsurface investigation subject to both natural limits and interpretational errors. Vibra-Tech Engineers does not guarantee that the interpreted subsurface conditions will completely coincide with the geological conditions that actually exist.

One limitation of the seismic refraction method is that the compressional wave velocity of groundwater (5000 ft./sec.) is similar to that of some types of weathered rock. Unconsolidated soil materials located below the water table will appear to have the same velocity as weathered rock. Boring and test pit information is needed to supplement the seismic surveying in order to identify the nature of the 5000 ft./sec. material.

Under certain circumstances a subsurface layer may not be detected by the seismic refraction method. One instance would be the inability to detect a velocity inversion. A velocity inversion is when a lower layer has a lesser seismic velocity than the overlying material. An example of this would be a soft shale which underlies a hard sandstone.

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The interface between the sandstone and the shale could not be mapped. The seismic refraction method will only map those layers which become progressively harder with depth.

Another instance where a subsurface layer may not be detected is when this layer has insufficient velocity contrast or insufficient thickness, with respect to the overlying and underlying materials. This situation is called a "hidden layer" in the geophysical literature. Correlation of the seismic data with drill hole logs will normally identify the presence and thickness of these layers. Hidden layers are often indicated on the seismogram by analyzing second and third arriving events.

Results of the Survey

The recorded seismic data was analyzed using two methods. The two methods used were SIPT (Seismic Interpretation Program), a ray tracing program developed by the United States Geological Survey and the Generalized Reciprocal Method.

The seismic velocity is a direct measure of the strength, hardness, and degree of compaction of the material. Unconsolidated soil overburden would have a low velocity (1000-2000 ft./sec.), whereas hard, unweathered bedrock would have a high velocity (10,000 ft./sec.).

The results have been presented in cross-sectional view and can be found in the appendix of this report.

We have classified the following material types from the seismic profiles in terms of seismic velocity.

Seismic Velocity (ft./sec.)	Description of Material
1000-2500	Dry, unconsolidated soil overburden.
3000-4000	Highly weathered and decomposed rock containing soil and rock pinnacles, irregular top of rock surface.
4500-5100	Groundwater.
6400-7500	Moderately weathered and fractured bedrock.
8200-9900	Slightly weathered and fractured bedrock.
10,000-15,000	Unweathered bedrock.

Respectfully submitted,

VIBRA-TECH ENGINEERS, INC.

Douglas Rudenko

Douglas Rudenko
Geophysicist

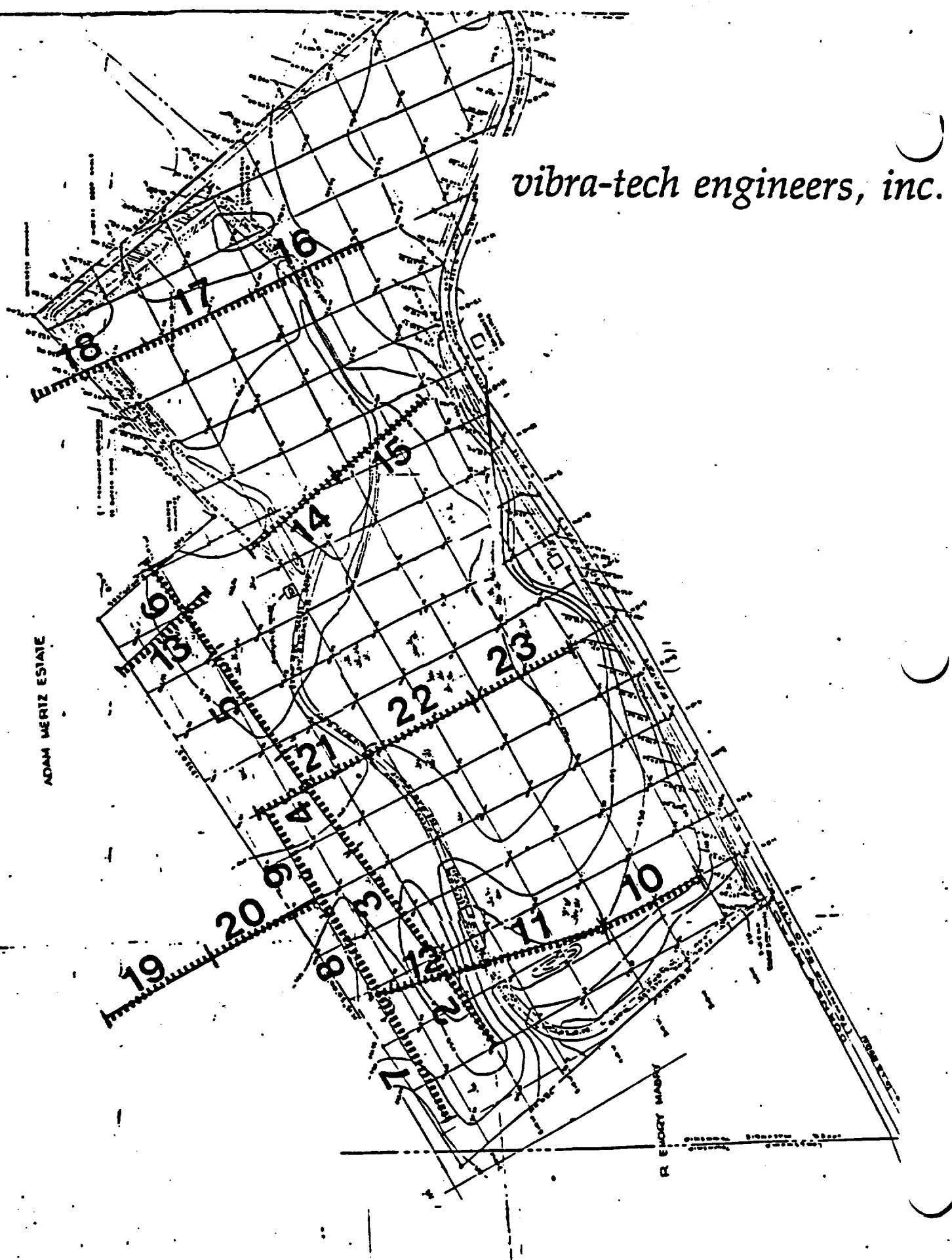
James W. Reil

James W. Reil, CPGS
Senior Vice President

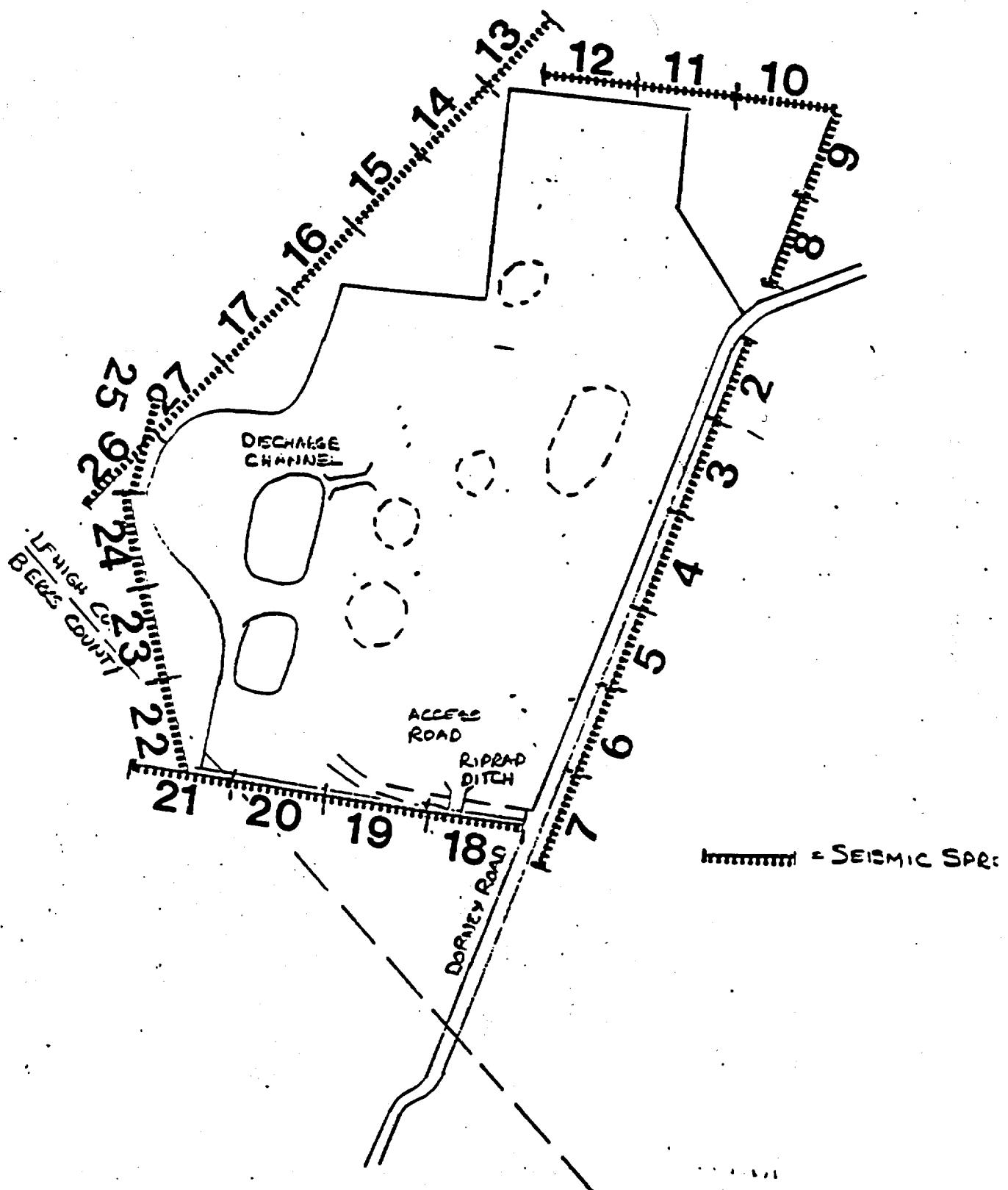
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Appendix

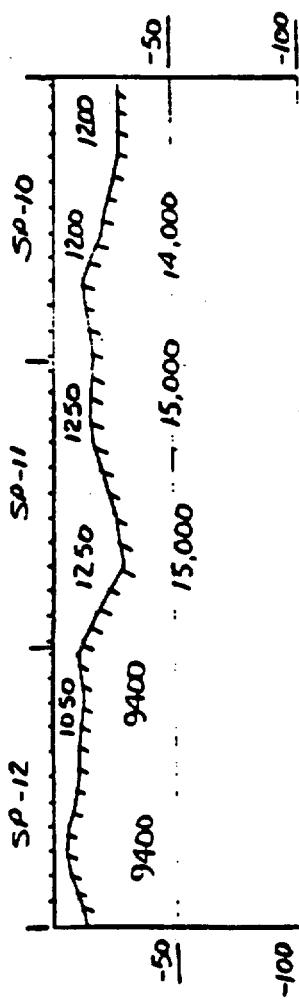
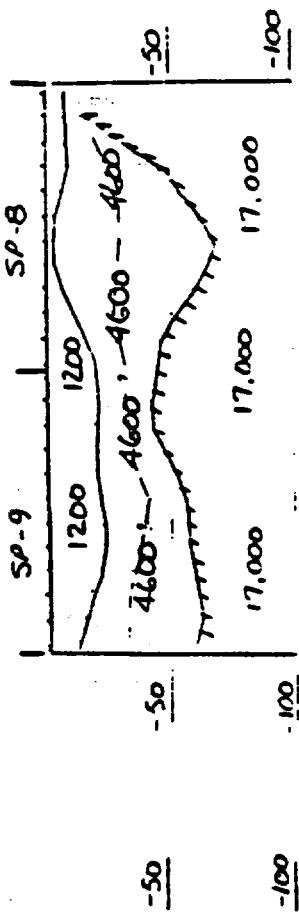
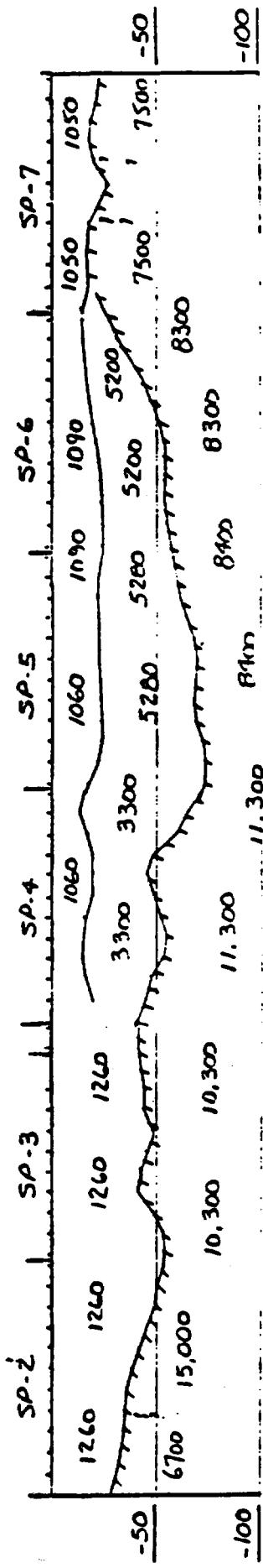
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vibra-tech engineers, inc.



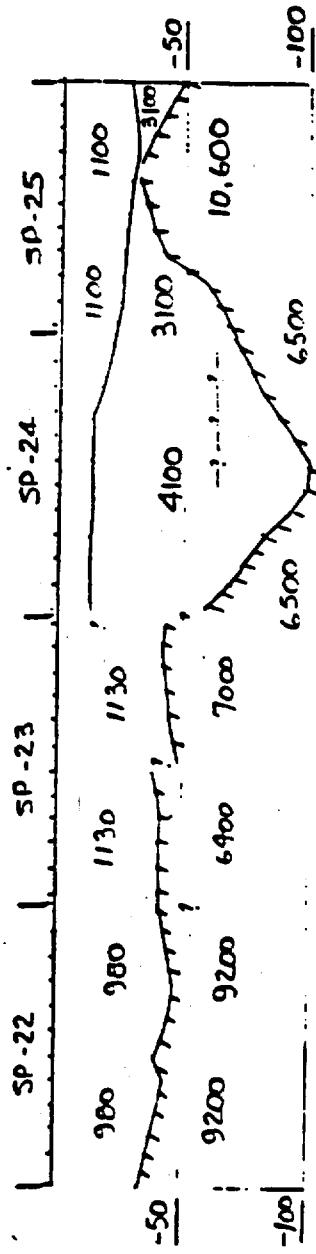
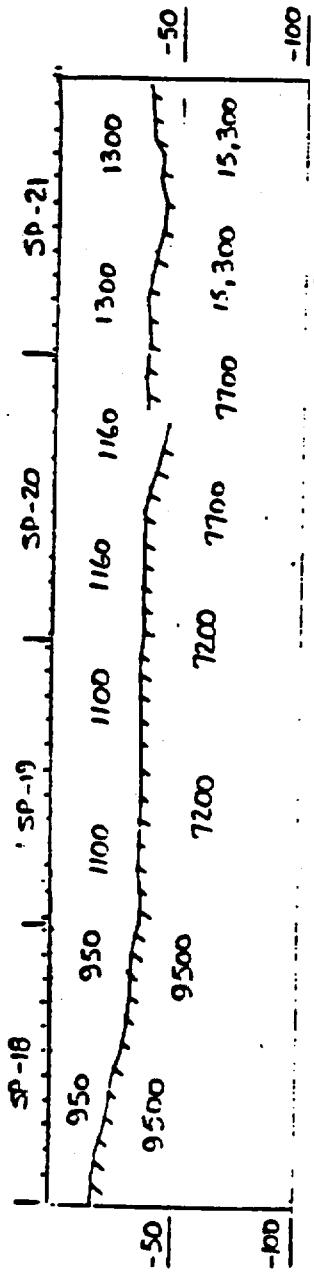
Seismic Survey Around Landfill Perimeter
AR300993



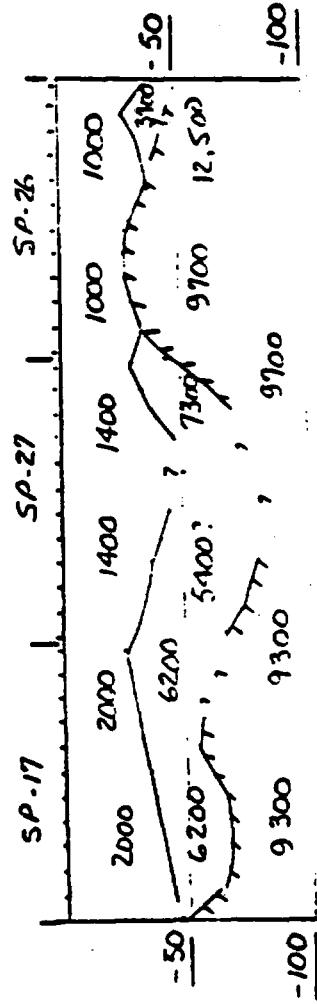
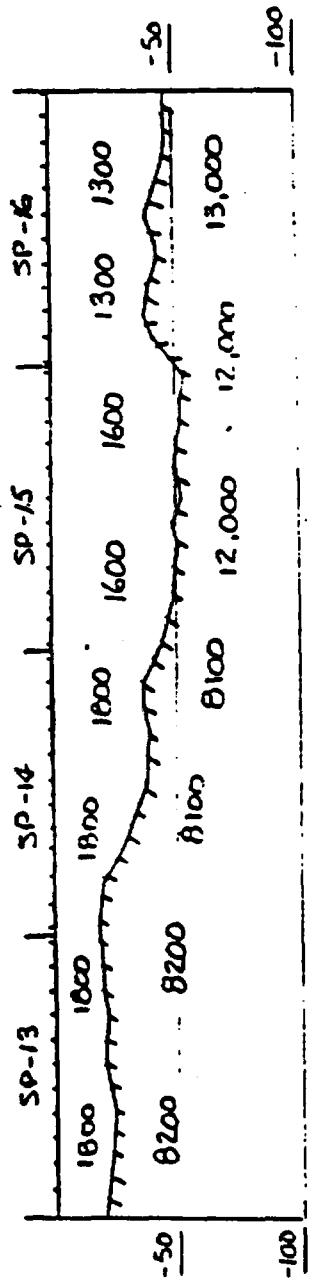
AR300994

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SCALE NOTED DATE 2/8/88	APPROVED BY NAME J. V. VIALO
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OUTSIDE LANDFILL AREA	

VIBRA-TECH ENGINEERS	
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DATE 2/10/EB	REMARKS
DORNEY ROAD LANDFILL	
OUTSIDE LANDFILL AREA	
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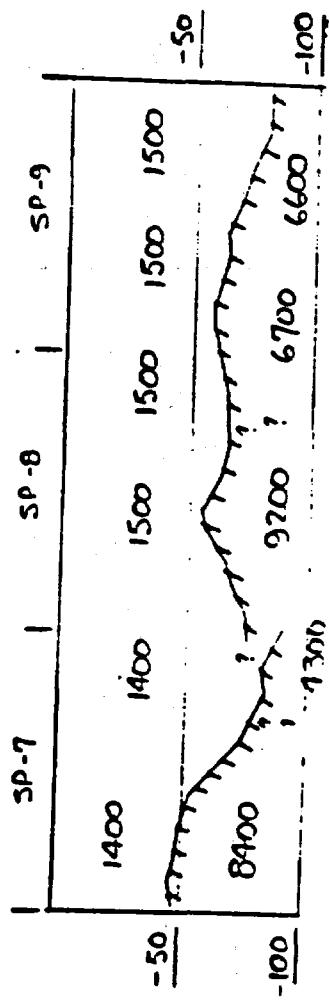
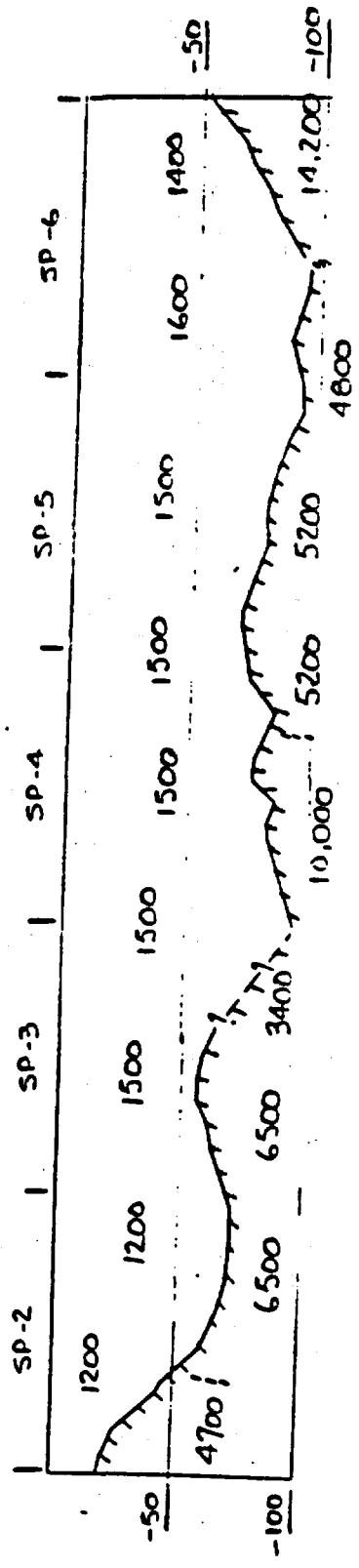


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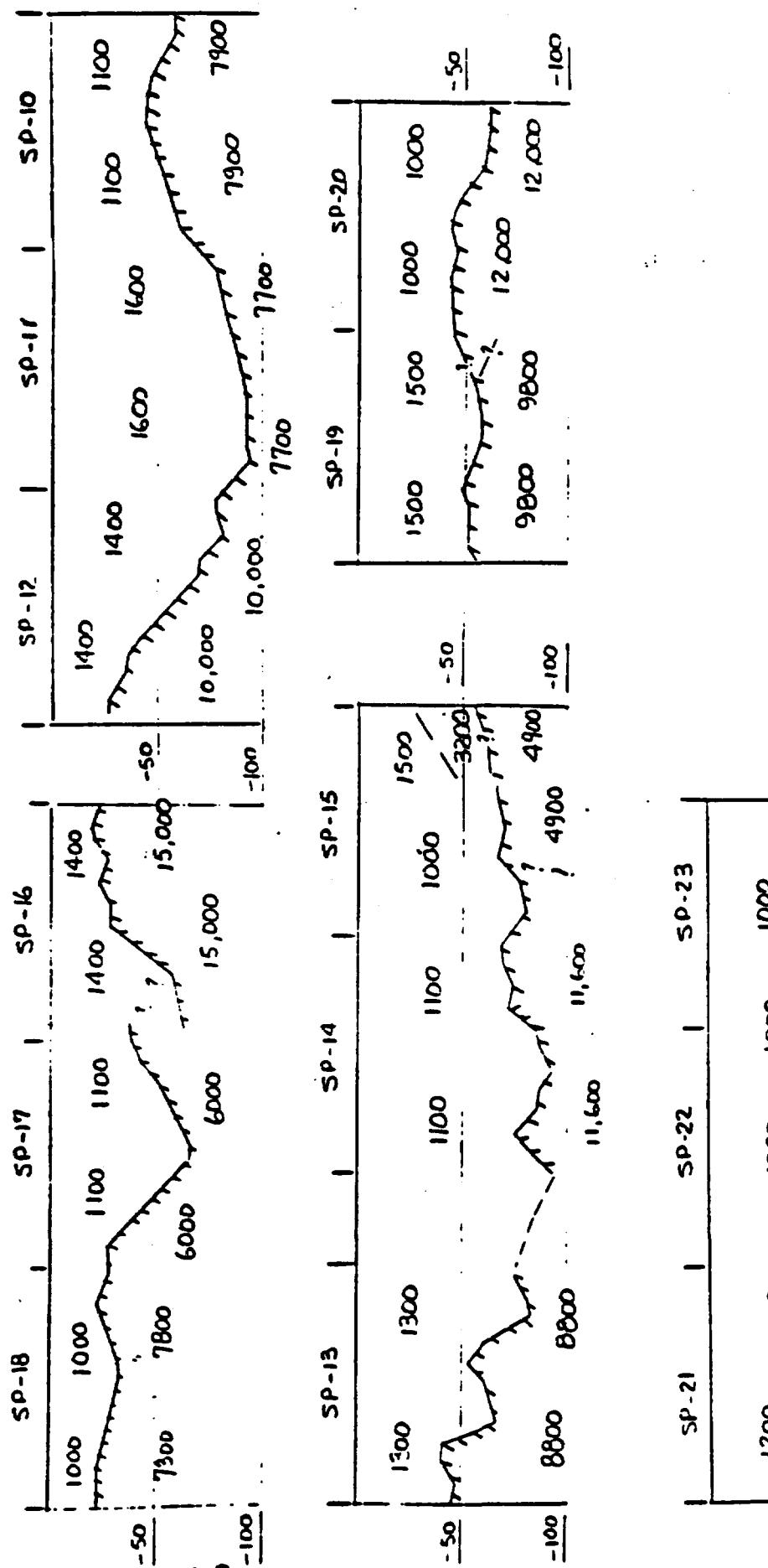
DORNEY ROAD LANDFILL

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 DORNEY ROAD LANDFILL
 INSIDE LANDFILL AREA

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Field Data

Landfill Perimeter

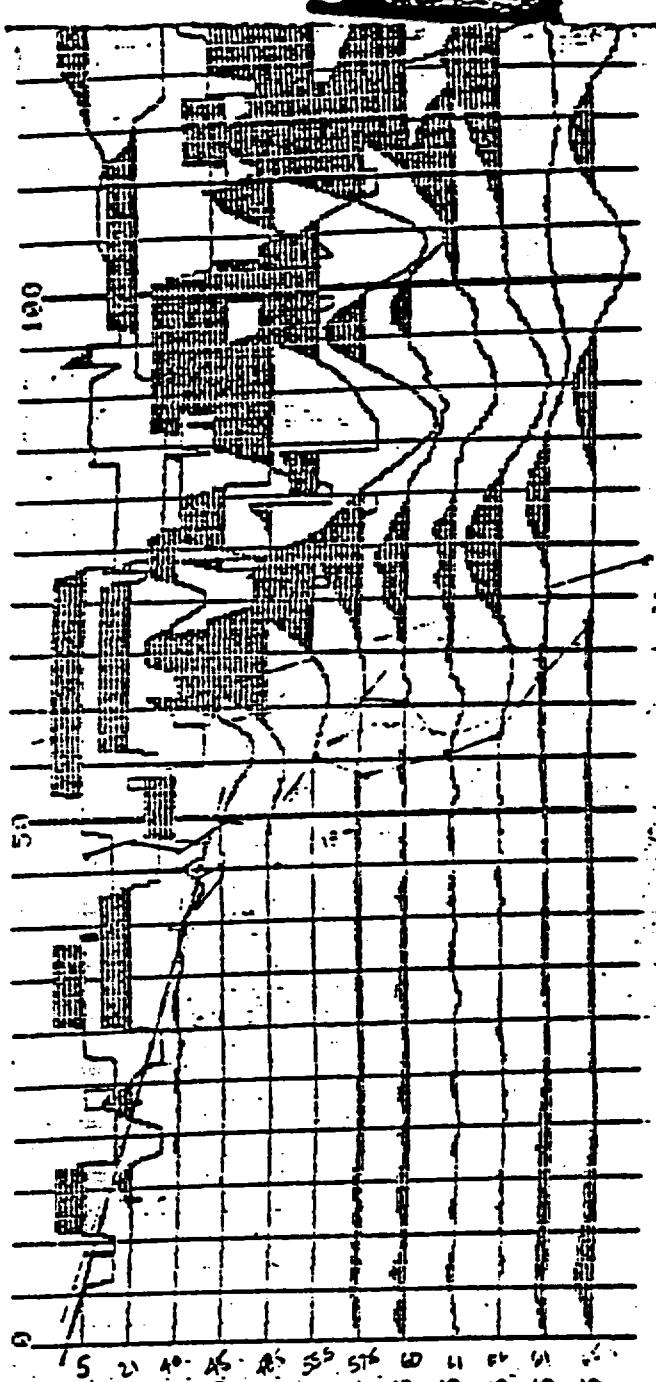
AR300999

E966 GEOMETRICS
VERSION 2.0
ES-1235
FILE NO 1463

TEST

Darney Road 1F
Stack + 2 Outside

RECORD TIME 4 54 10 3
250 MSEC 5 54 11 4
DELAY TIME 6 54 11 4
0 MSEC
STACK COUNT 7 54 14 5
8 54 15 6
9 54 15 6
10 54 16 7
11 54 15 6
12 54 15 6
FILTER IN



E966 GEOMETRICS

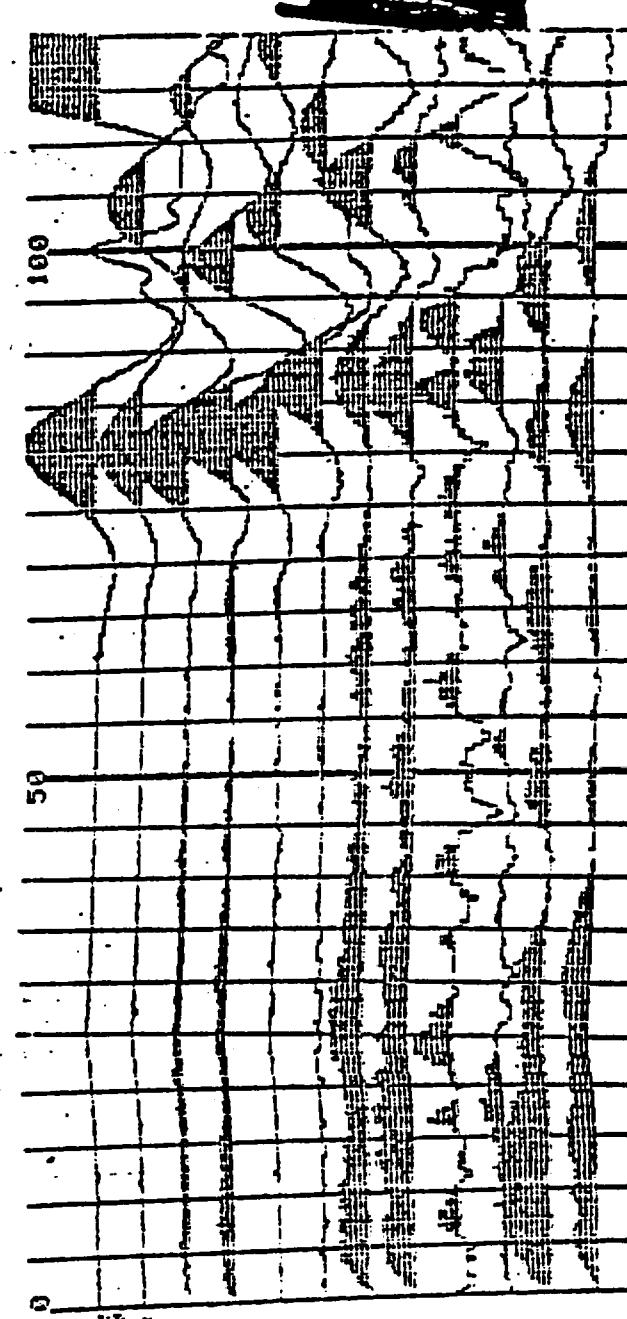
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VERSION 2.0
FILE NO 1463

Darney Road

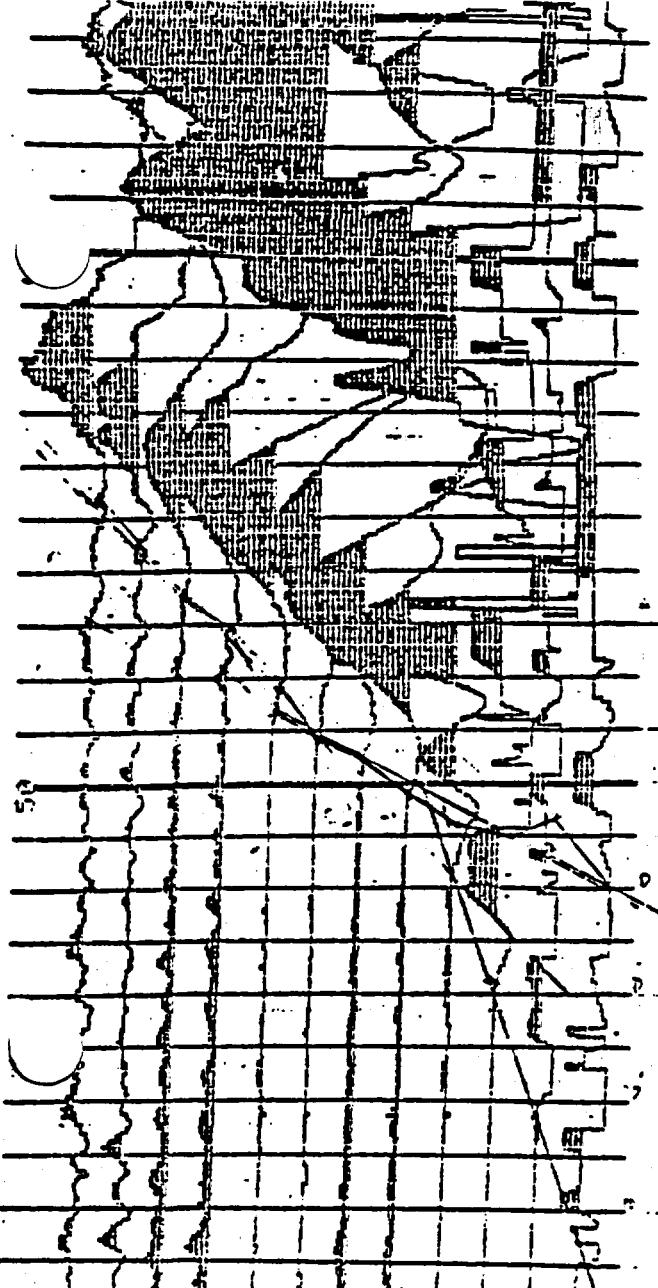
1F Stack 3

ARSOT000

CH GN TS 1 54 12 1
2 54 12 1
3 54 13 1
4 54 14 1
5 54 15 1
6 54 15 1
7 54 17 1
8 54 17 1
9 54 19 1
10 54 17 1
11 54 17 1
12 54 16 1
STACK COUNT



EGG GEOMETRICS
 S-1225
 VERSION 2.0
 FILE NO. 1463
 RECORD TIME 250 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 3
 FILTER IH



EGG GEOMETRICS
 S-1225
 VERSION 2.0
 FILE NO. 1463
 RECORD TIME 250 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 3
 FILTER IH

4pt Offset 10° TEST
 Following record Outside

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EGG GEOMETRICS

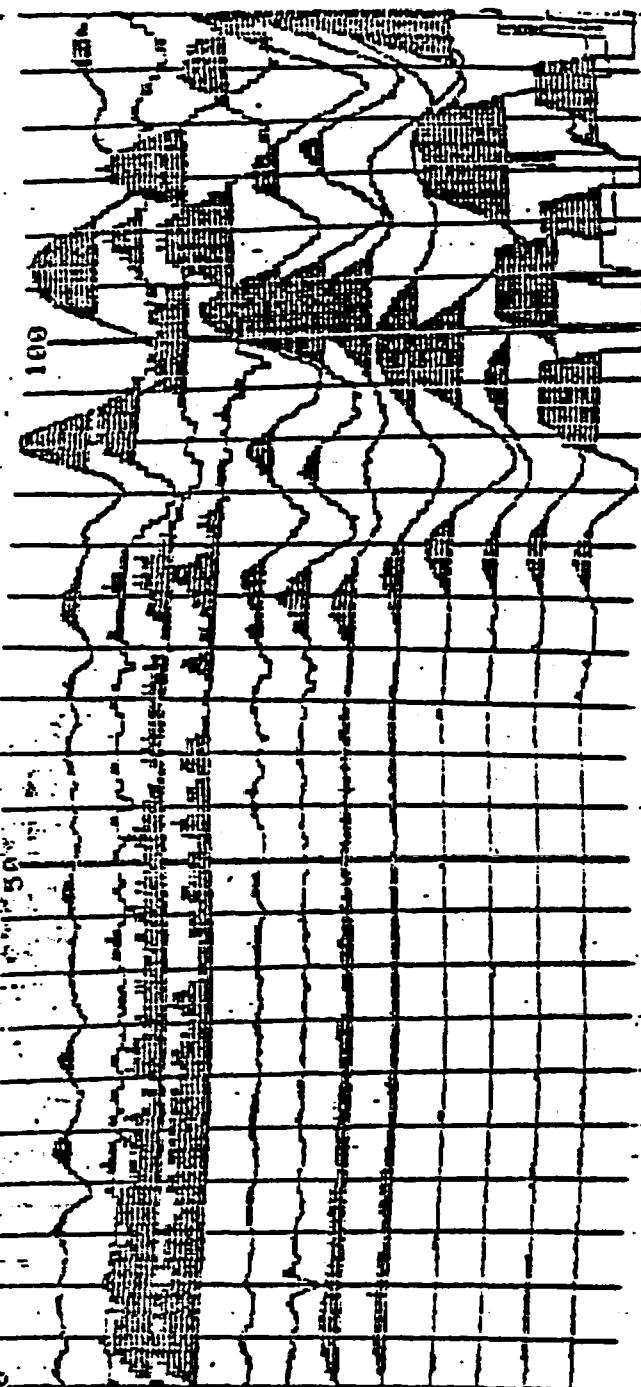
EST-125
VERSION 2.0
FILE NO. 1463

RECORD TIME
250 MSEC
3 60 19

DELAY TIME
0 MSEC
6 60 17

STACK COUNT
2

FILTER IN
12 60 11



Denny Re. SP-2 I.P. Outside
250

EGG GEOMETRICS

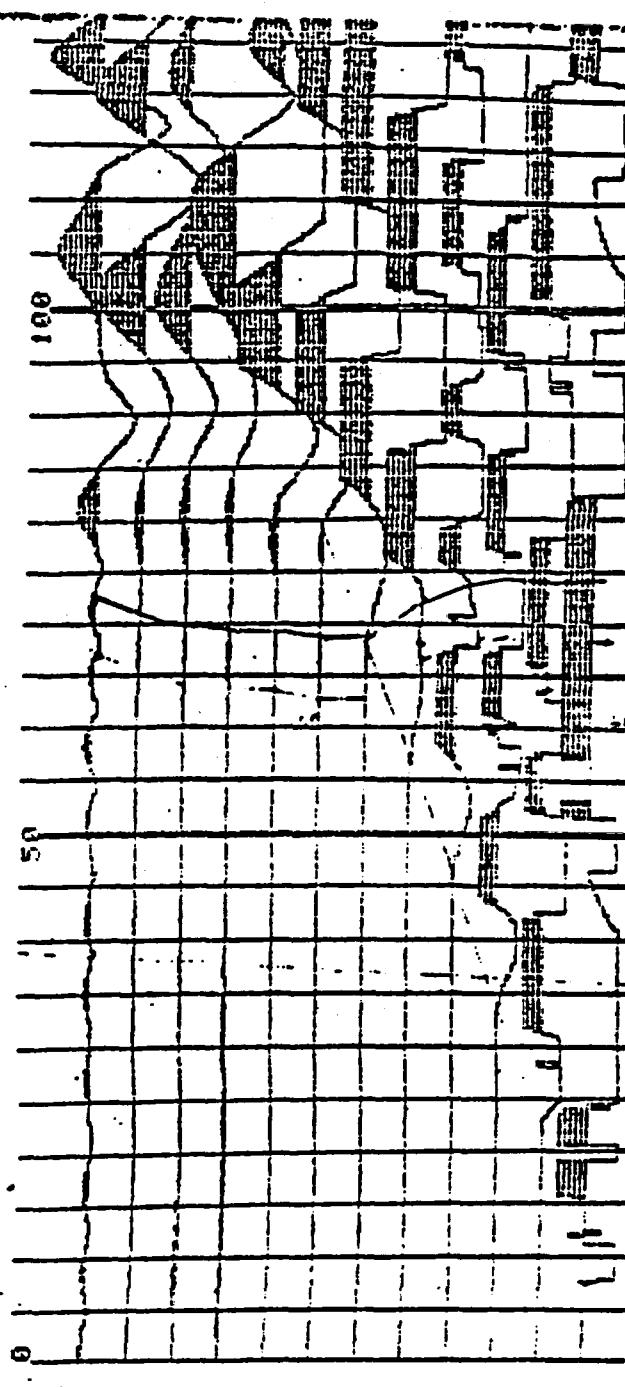
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6 60 9

STACK COUNT
2

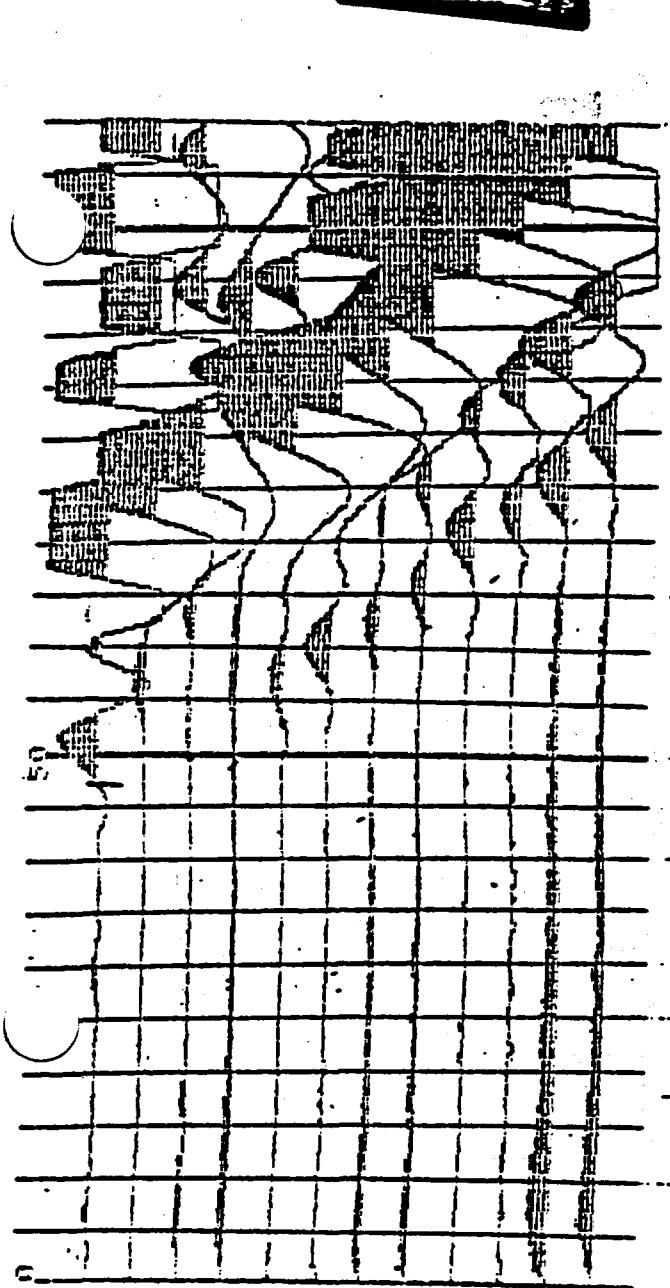
FILTER IN
12 42 9



Denny Re. SP-2
2 AR 30 10 08 outside

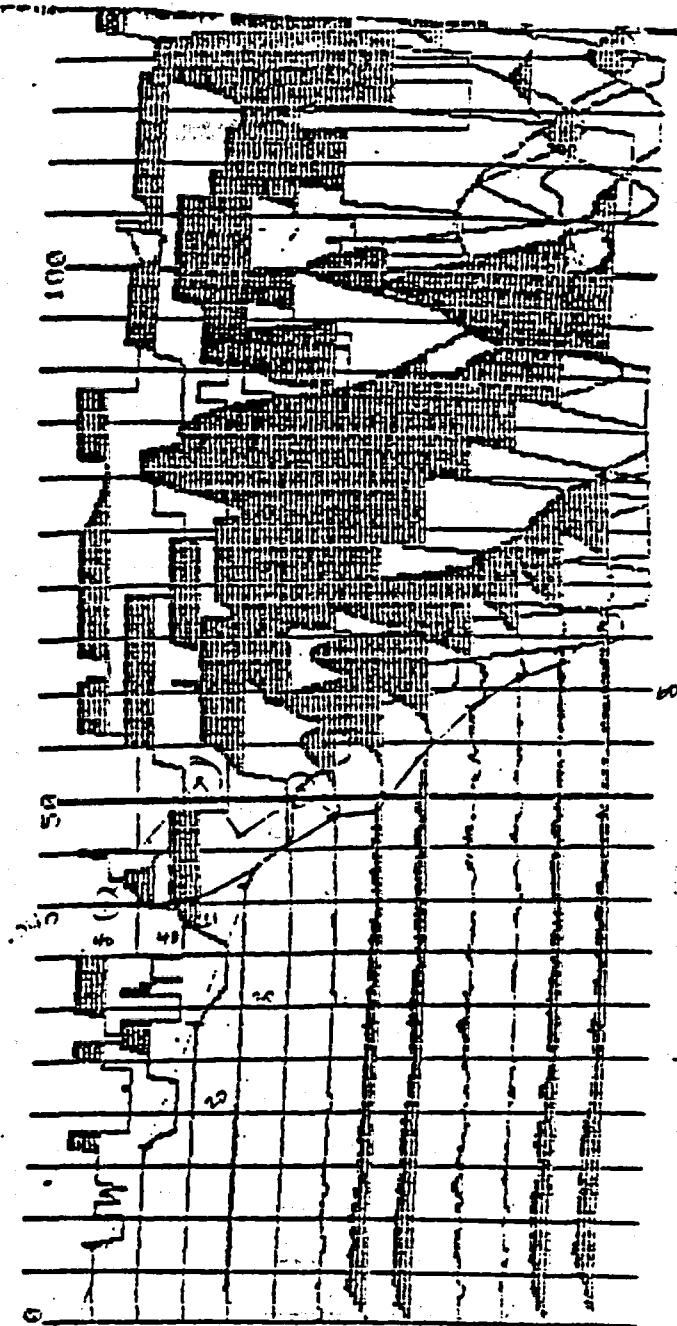
Egg Geometrics
Version 2.0
ES-1225
FILE NO 1463
RECORD TIME 250 MSEC
DELAY TIME 0 MSEC
STACK COUNT 0
FILTER IN

2
Offset 15°
Diving Rool for 335
Outside



Egg Geometrics
Version 2.0
ES-1225
FILE NO 1463
RECORD TIME 250 MSEC
DELAY TIME 0 MSEC
STACK COUNT 0
FILTER IN

2
Offset 15°
Diving Rool for 335
Outside



AR301003

Egg Geometrics
ES-1225 Version 2.0

FILE NO 1469

RECORD TIME

250 MSEC

DELAY TIME

0 MSEC

STACK COUNT

3

FILTER IN

12 60 16

Doring Rd

TS 0 3

220'

Outside

Egg Geometrics

ES-1225 Version 2.0

FILE NO 1463

RECORD TIME

250 MSEC

DELAY TIME

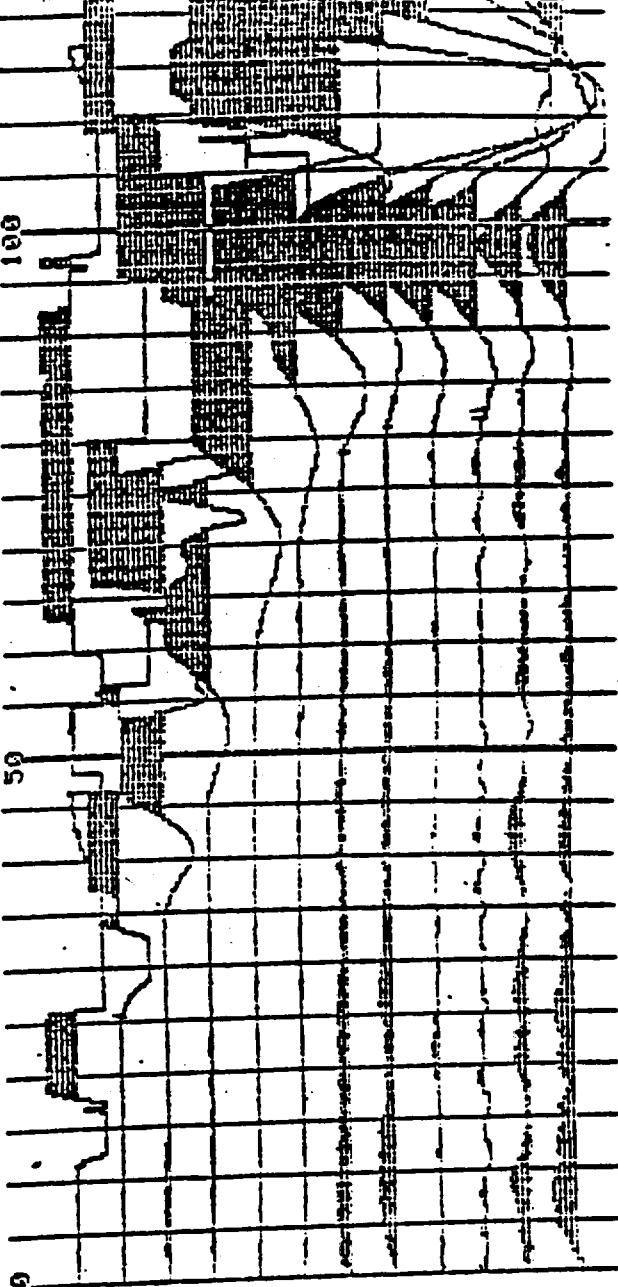
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STACK COUNT

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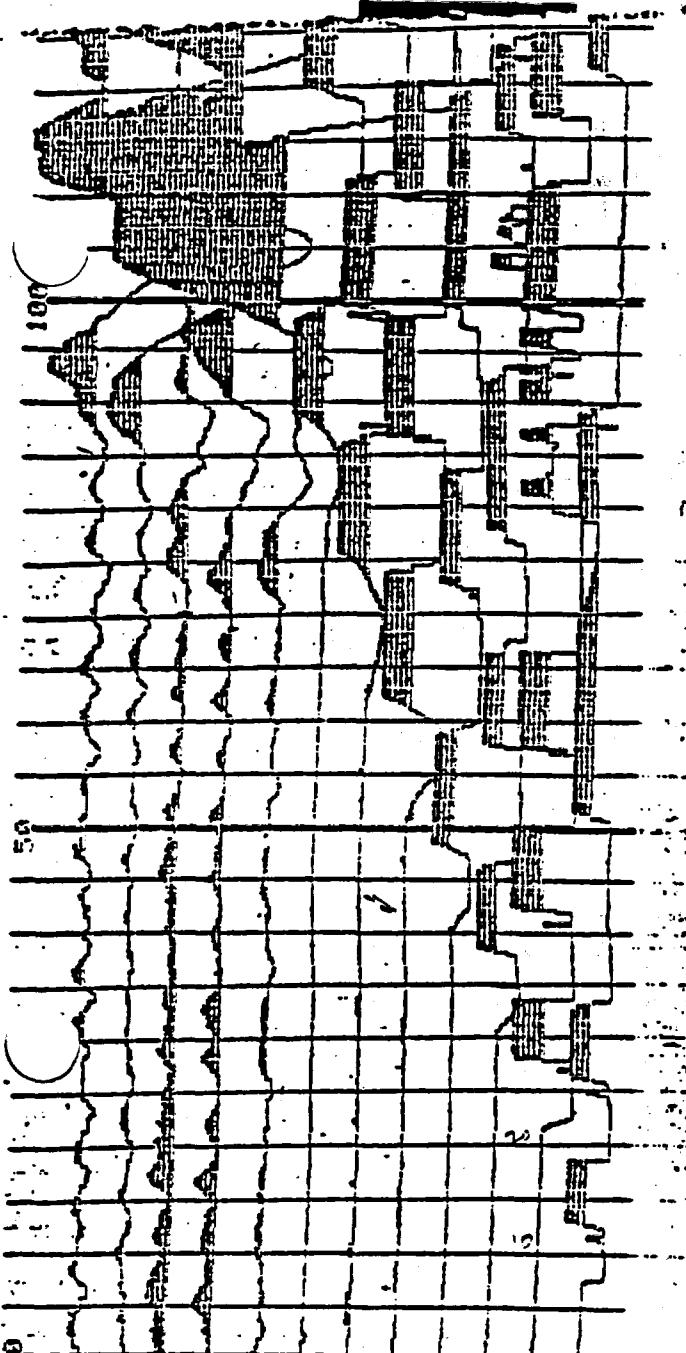
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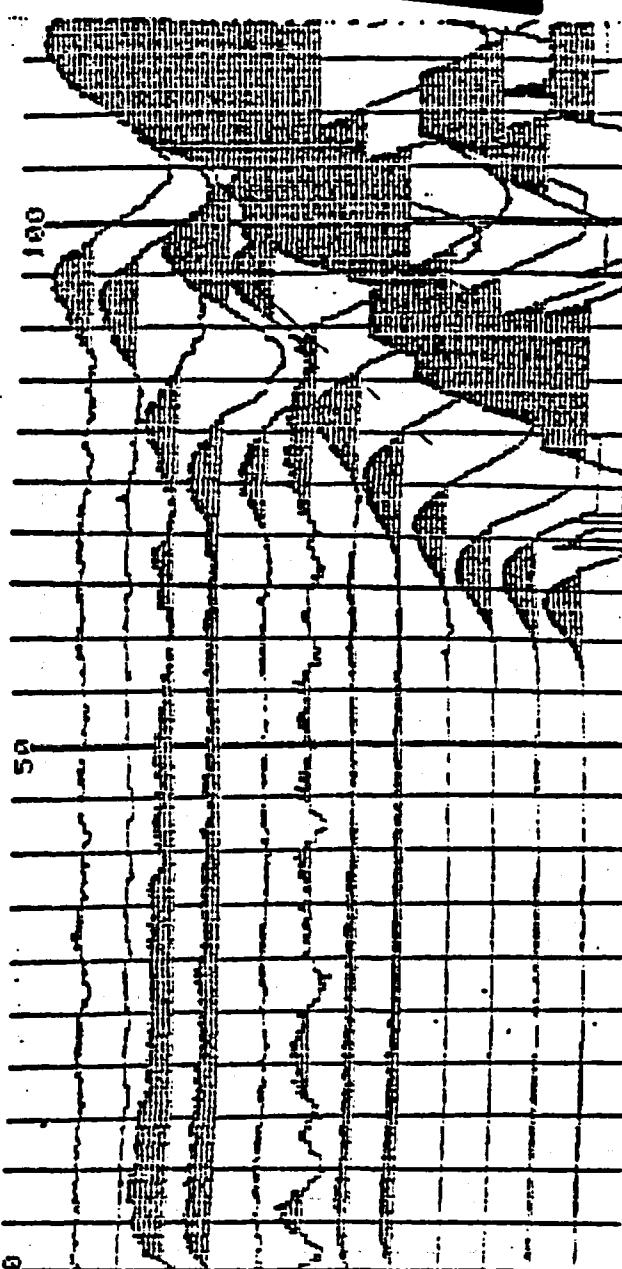
During Rd SP-3R Outside



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 STACK COUNT 3
 FILTER IN

During Rd SP-3R Outside

AR301005



EG&G GEOMETRICS
ES-1225 VERSION 2.0 FILE NO 1463

RECORD TIME 11:00 250 MSEC

DELAY TIME 6 60 15

0 MSEC

8 60 14

STACK COUNT 9 60 15

1 19 60 12

11 60 11

FILTER IN 12 60 10

Denny Rd SP4LR Outside

EG&G GEOMETRICS
ES-1225 VERSION 2.0
FILE NO 1463

RECORD TIME 11:00 250 MSEC

0 MSEC

3 60 16

6 60 13

9 60 11

1 19 48 8

11 42 9

12 36 8

Denny Rd SP4R Outside

AR301006

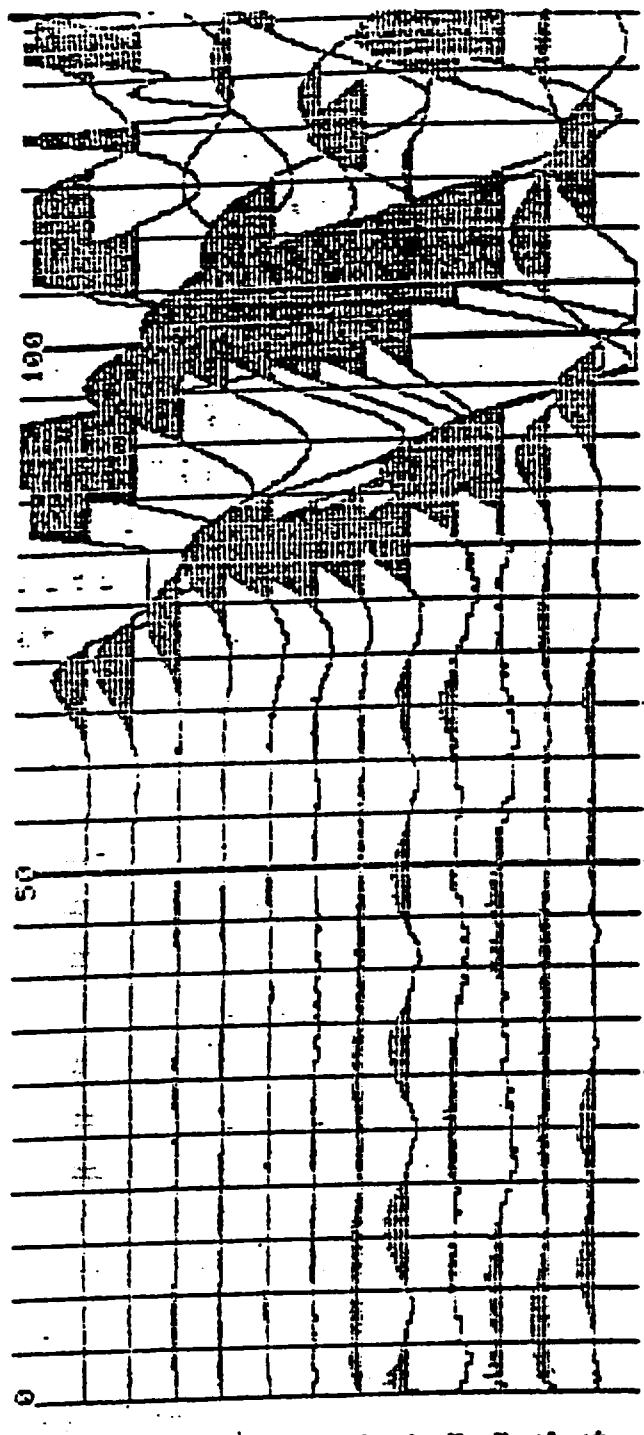
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 FILE NO. 1463
 RECORD TIME 1 60 1
 2 60 12
 3 60 14
 4 60 17
 5 60 17
 6 60 17
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 8 60 15
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 10 60 16
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 FILTER IN

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EGG GEOMETRICS
 VERSION 2.0
 FILE NO. 1463
 RECORD TIME 1 36 9
 2 42 9
 3 48 10
 4 54 10
 5 60 11
 6 60 12
 7 60 14
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 12 60 15
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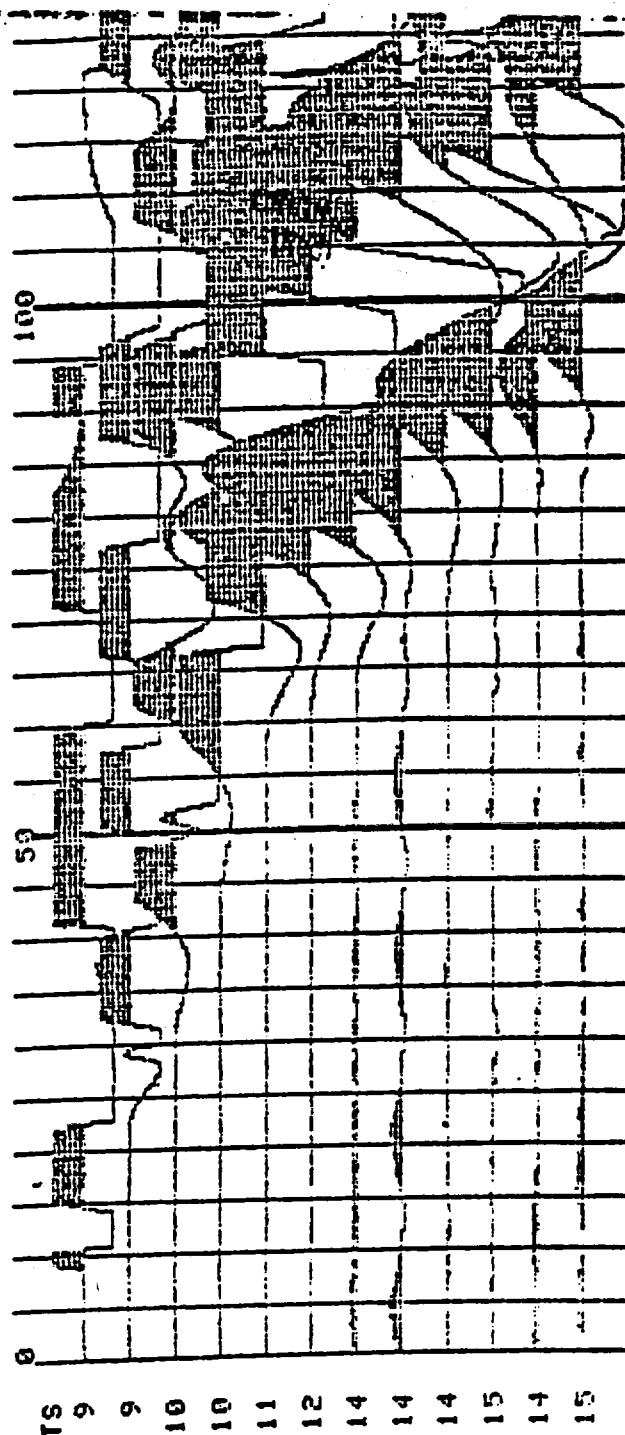
Dorothy R.
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 7-1 Cutwill

AR301007



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 FILE NO 1463
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 DELAY TIME
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 STACK COUNT
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 FILTER IN

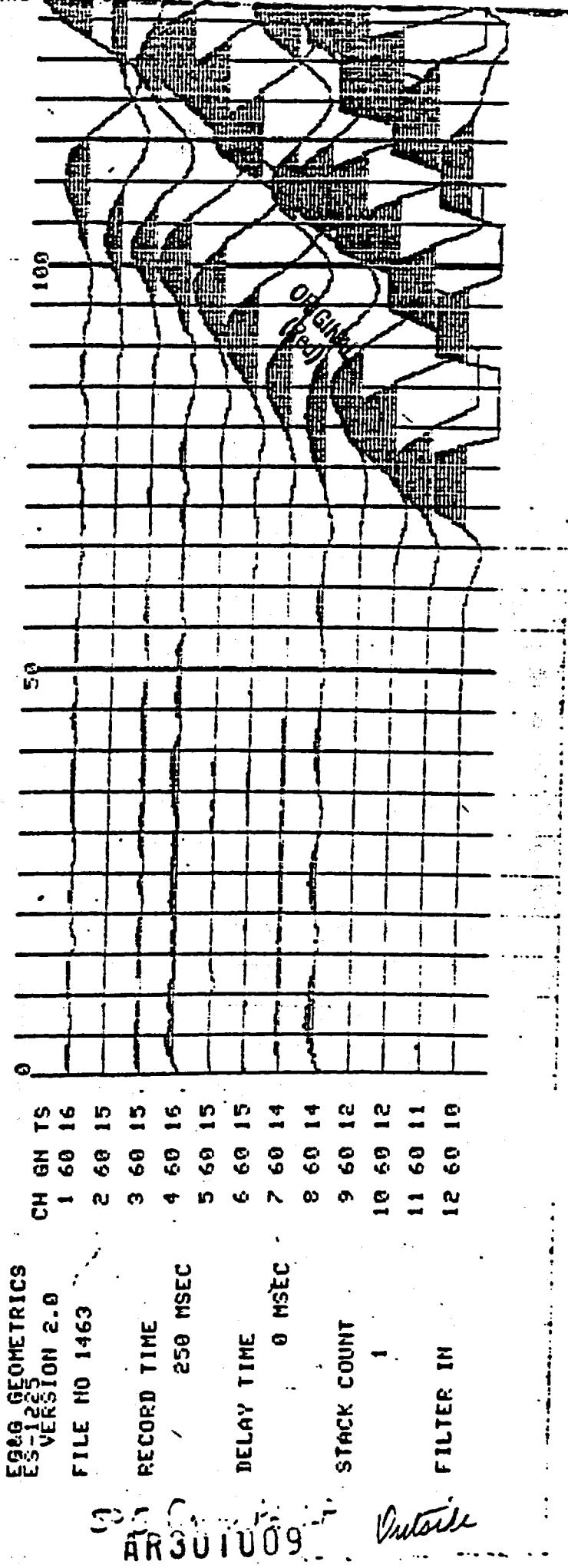
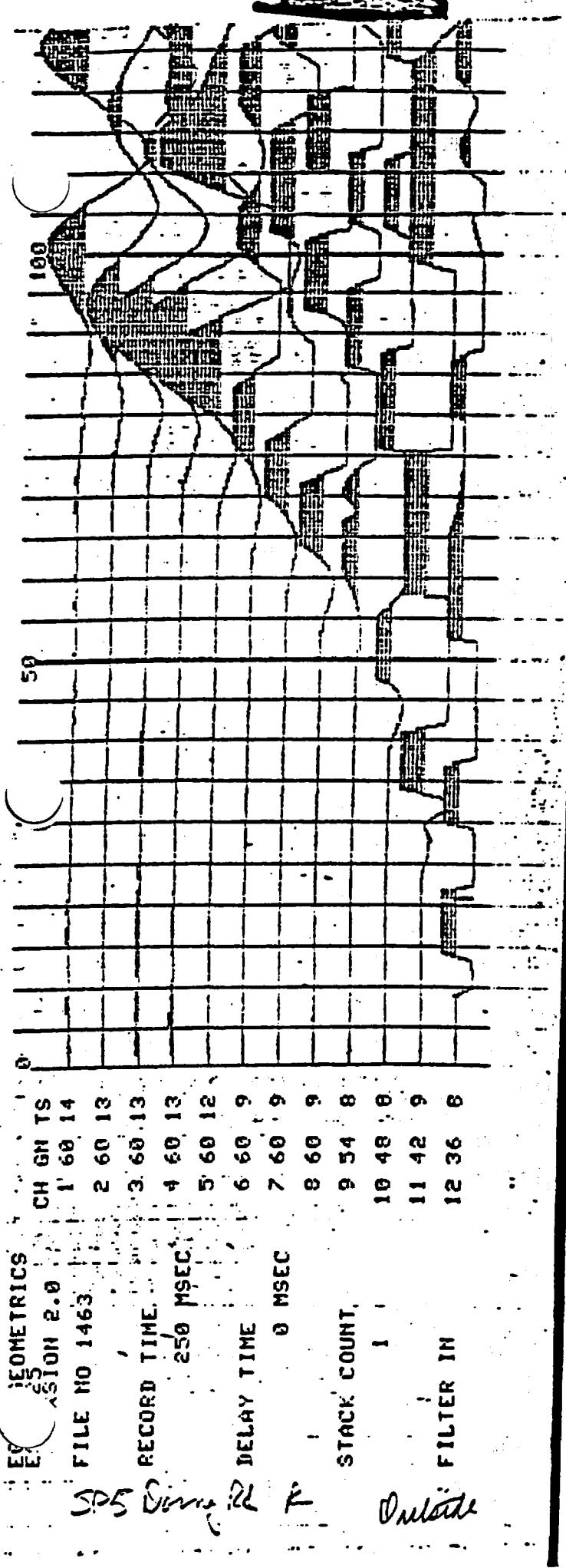
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EG&G GEOMETRICS
 EGG-255 VERSION 2.0
 FILE NO 1463
 RECORD TIME
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 STACK COUNT
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EGG GEOMETRICS
VERSION 2.0 CH GM TS

FILE NO 1463 1 2 42 9

RECORD TIME 3 48 16
250 MSEC 5 60 11

DELAY TIME 6 60 12

0 MSEC 7 60 12

STACK COUNT 9 60 13

10 60 13

11 60 14

12 60 15

FILTER IN

During Road Sess. Outside

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EGG GEOMETRICS

VERSION 2.0 CH GM TS

FILE NO 1463 1 60 11

RECORD TIME 2 60 17

250 MSEC 3 60 14

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6 60 17

7 60 15

8 60 16

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12 60 16

FILTER IN

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GEOMETRICS
 E5
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 FILE NO 1463
 RECORD TIME
 250 MSEC
 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 FILTER III

Day 12 So 6.2

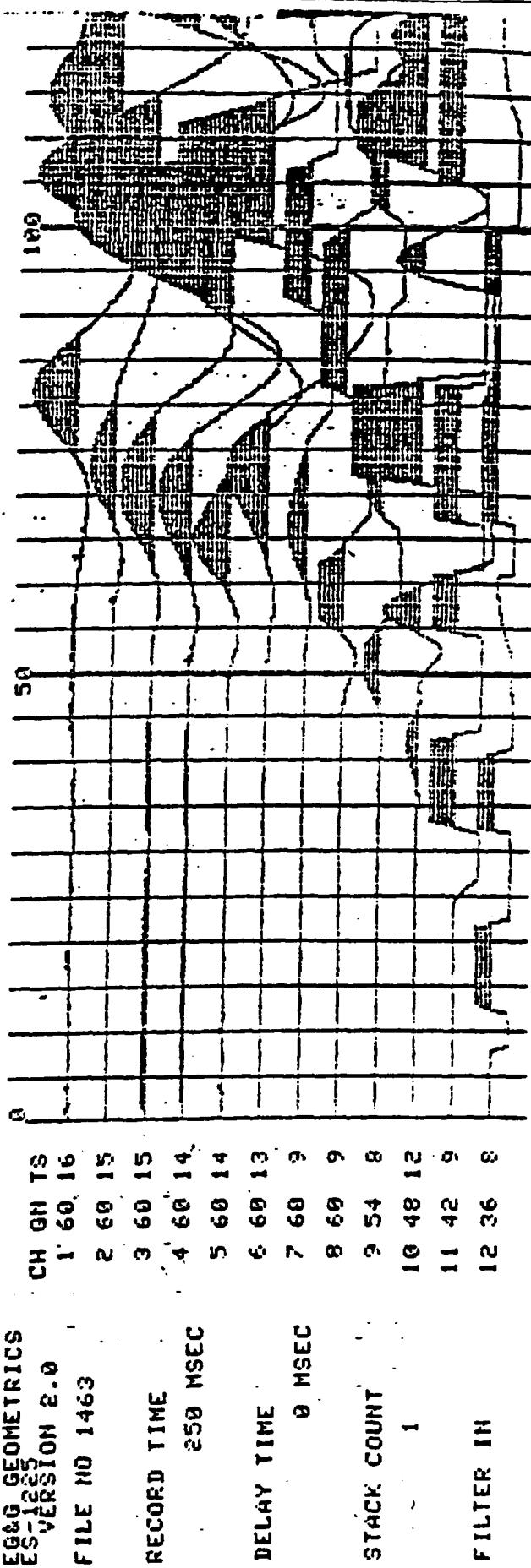
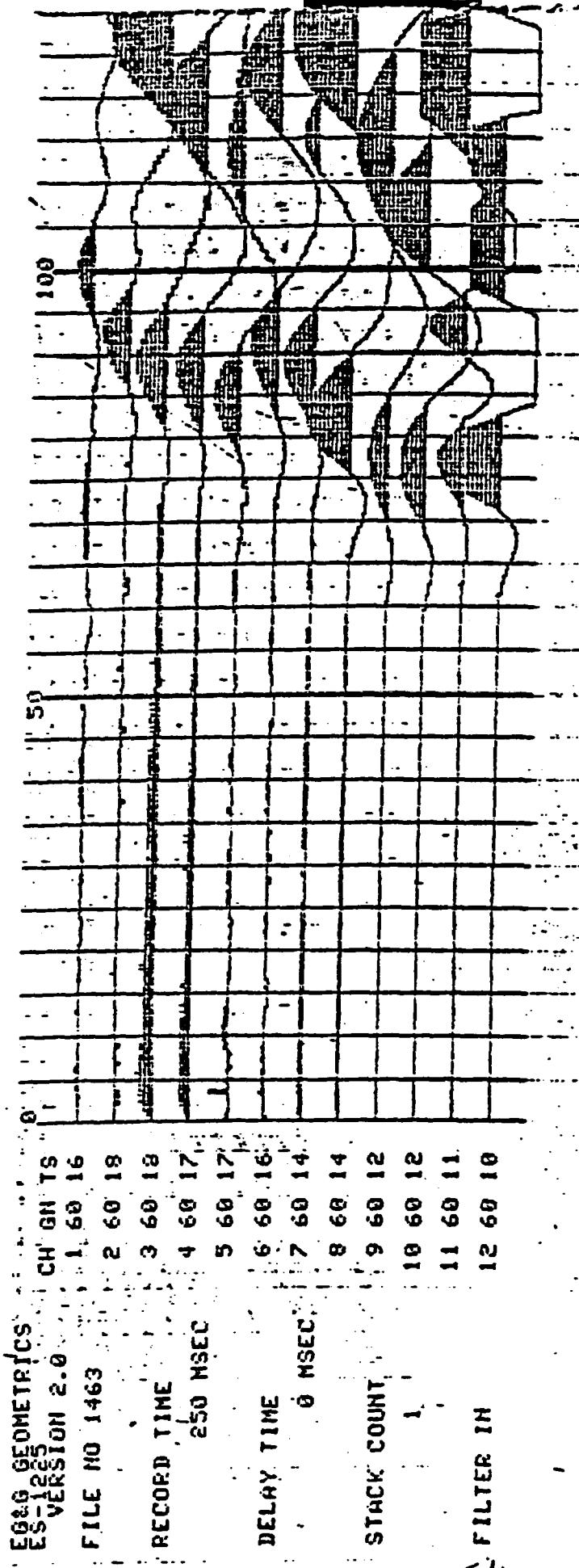
Outside

CH GN TS
 1 60 14
 2 60 12
 3 60 11
 4 60 12
 5 60 10
 6 60 9
 7 60 9
 8 60 9
 9 54 8
 10 48 8
 11 42 9
 12 36 8

EG&G GEOMETRICS
 E5-1225
 VERSION 2.0
 FILE NO 1463
 RECORD TIME
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 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 FILTER III

AR3010

Outside



AR301012

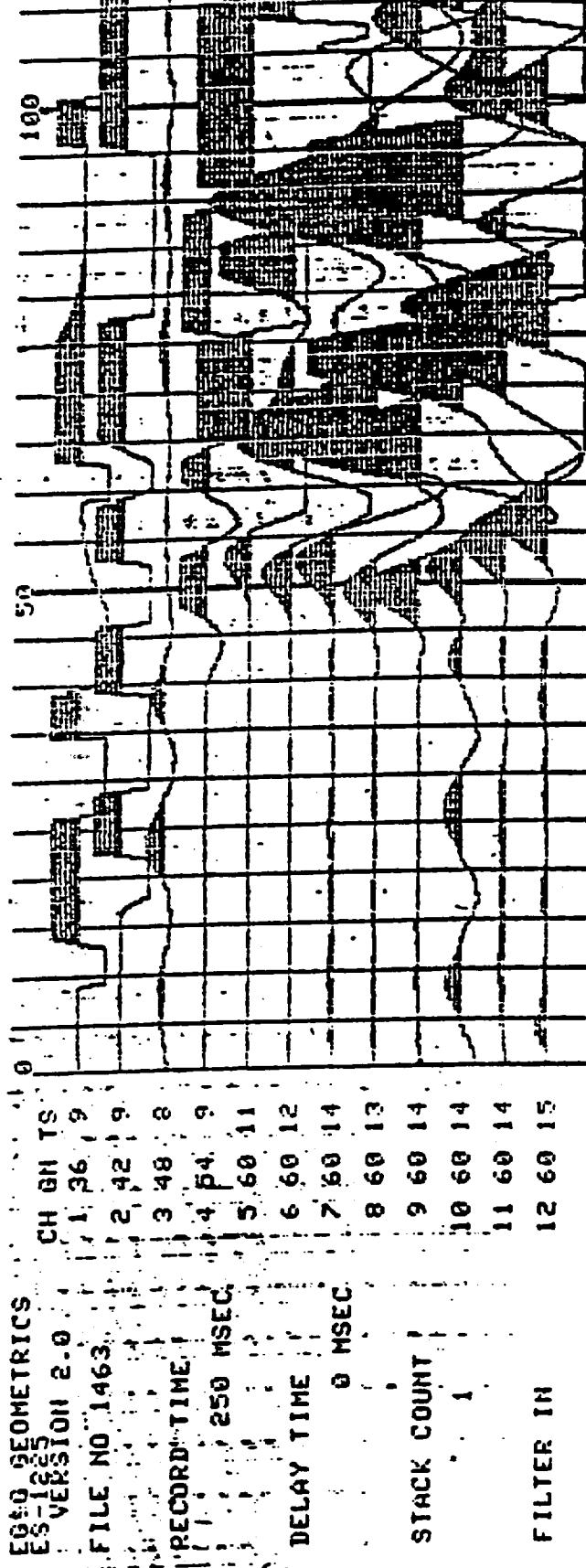
3 GEOMETRICS
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 250 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

During Rock 27-LF
 Outside

EG&G GEOMETRICS
 ES-1225
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 250 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

During Rock 27-T
 Outside

AR301013

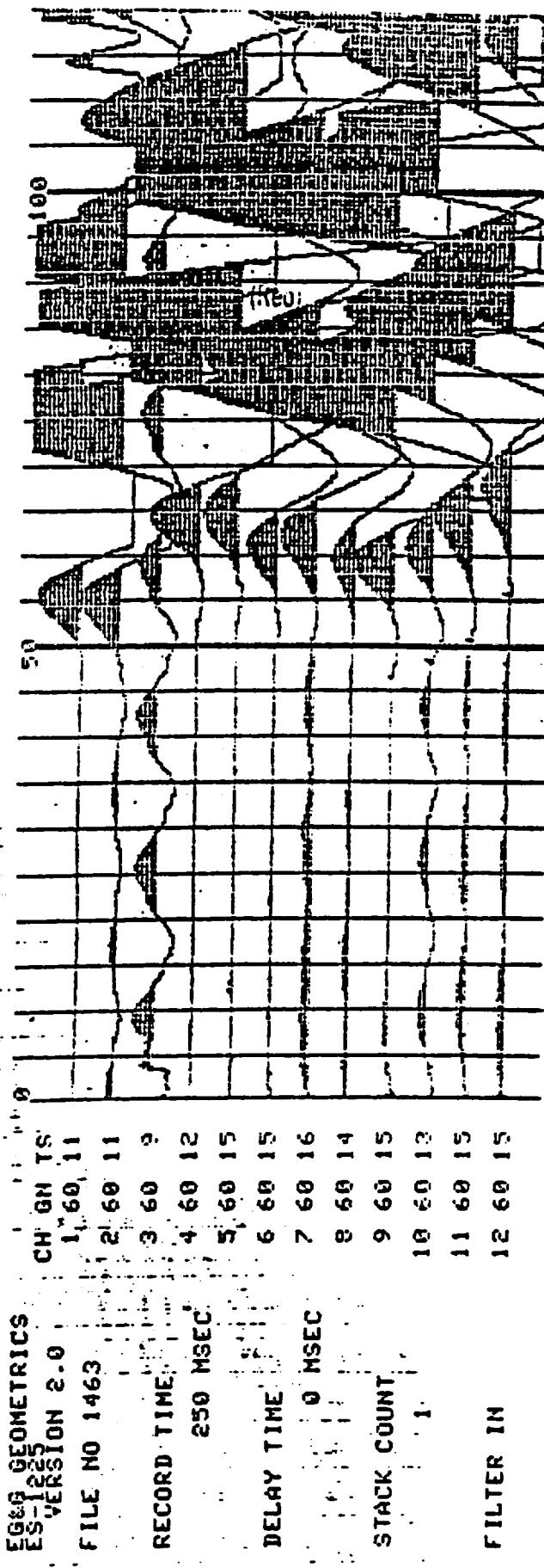


SP-10F

12:05

12/23/87

Outside



SP-10 LF

12:00 PM

12/23/87 AR301014 Outside

EG&G GEOMETRICS
ES-1225
VERSION 2.0
FILE NO 1463

RECORD TIME

250 MSEC

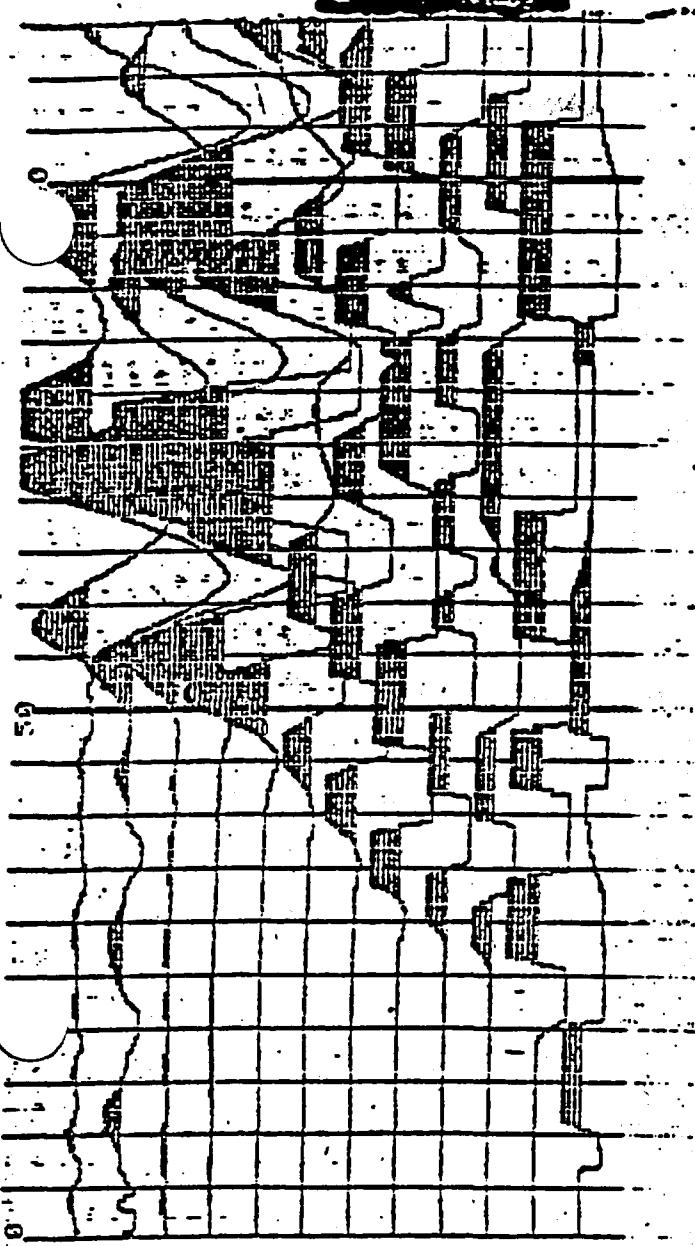
DELAY TIME

0 MSEC

STACK COUNT

1

FILTER IN



-P-10R

4:10 AM
12/23/87

Outside

EG&G GEOMETRICS
ES-1225
VERSION 2.0

FILE NO 1463

RECORD TIME

250 MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

FILTER IN

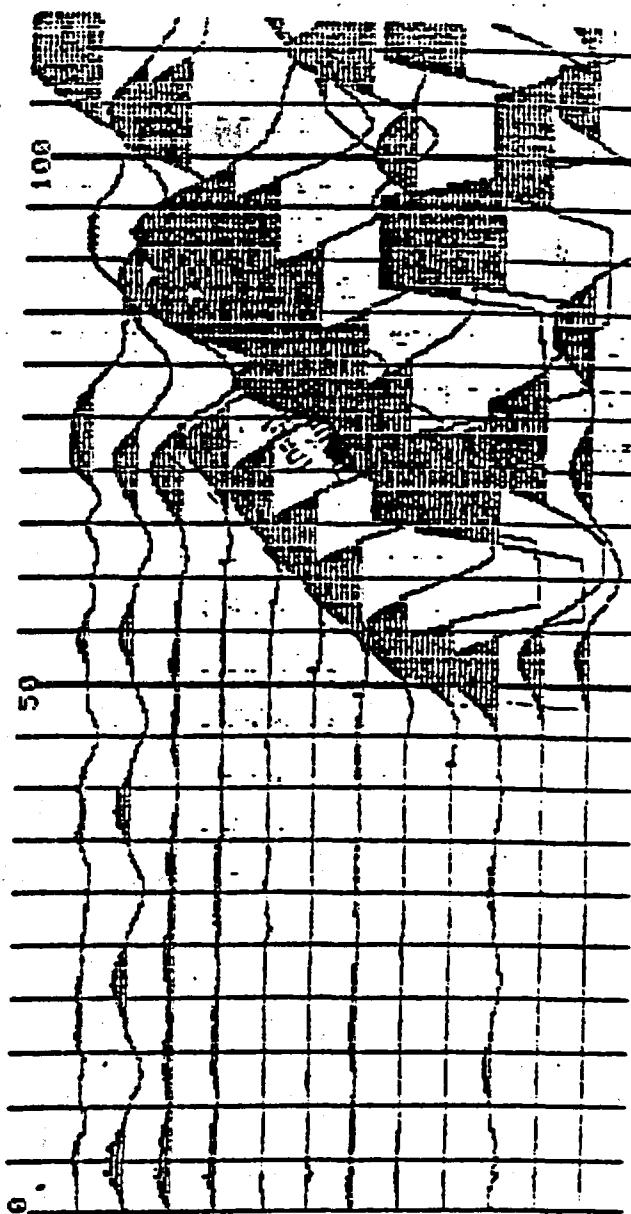
SP-10 LR

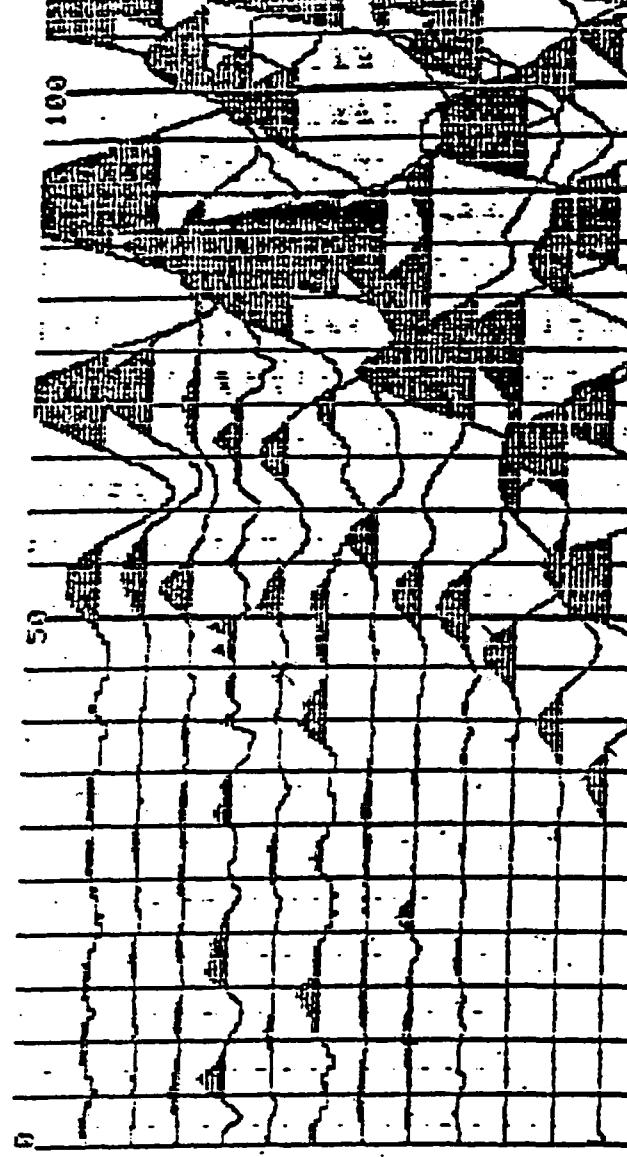
12:13 PM

12/23/87

Outside

AR301015





EG&G GEOMETRICS
 EST-1225 VERSION 2.0
 FILE NO. 1463
 RECORD TIME
 250 MSEC
 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 FILTER IN

SP-11LR
 2:13 PM
 12/23/67

Outside

EG&G GEOMETRICS
 EST-1225 VERSION 2.0
 FILE NO. 1463
 RECORD TIME
 250 MSEC
 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 FILTER IN

SP-11R
 2:15 PM
 12/23/67

Outside

AR301016

EGG GEOMETRICS

VERSION 2.0

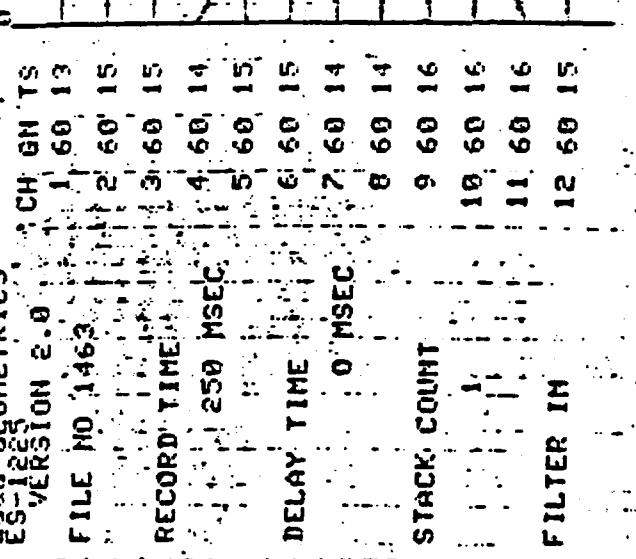
FILE NO. 1463

RECORD TIME 250 MSEC

DELAY TIME 0 MSEC

STACK COUNT

FILTER IN



SP-11 LF
2:05 PM
12/23/87

Outside

EGG GEOMETRICS

VERSION 2.0

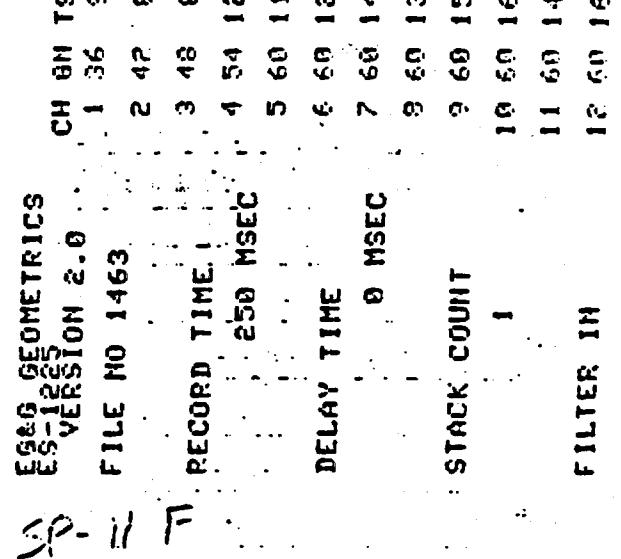
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RECORD TIME 250 MSEC

DELAY TIME 0 MSEC

STACK COUNT

FILTER IN



SP-11 F
2:05 PM
12/23/87

Outside

AR301017

EGG GEOMETRICS

ES-122
VERSION 2.0

FILE NO 1463

RECORD TIME 1 3 60 18

250 MSEC

CH 1 TS 1 60 18

CH 2 TS 2 60 16

CH 3 TS 3 60 18

CH 4 TS 4 60 13

CH 5 TS 5 60 13

CH 6 TS 6 60 13

CH 7 TS 7 60 13

CH 8 TS 8 60 13

CH 9 TS 9 60 13

CH 10 TS 10 60 15

CH 11 TS 11 60 15

CH 12 TS 12 60 13

CH 13 TS 13 60 13

CH 14 TS 14 60 13

CH 15 TS 15 60 13

CH 16 TS 16 60 13

CH 17 TS 17 60 13

CH 18 TS 18 60 13

CH 19 TS 19 60 13

CH 20 TS 20 60 13

CH 21 TS 21 60 13

CH 22 TS 22 60 13

CH 23 TS 23 60 13

CH 24 TS 24 60 13

CH 25 TS 25 60 13

CH 26 TS 26 60 13

SP-12 LR
2:39 PM
12/23/87

Outside

EGG GEOMETRICS
ES-122
VERSION 2.0

FILE NO 1463

RECORD TIME 1 4 60 11

250 MSEC

CH 1 TS 1 60 16

CH 2 TS 2 60 15

CH 3 TS 3 60 13

CH 4 TS 4 60 11

CH 5 TS 5 60 10

CH 6 TS 6 60 9

CH 7 TS 7 60 10

CH 8 TS 8 60 9

CH 9 TS 9 60 10

CH 10 TS 10 48 12

CH 11 TS 11 42 11

CH 12 TS 12 36 8

STACK COUNT 1

2

3

4

5

Outside

SP-12 R

2:39

12/23/87

AR301018

EGG GEOMETRICS
EST-125
VERSION 2.0
FILE NO 1463

RECORD TIME 0 MSEC
DELAY TIME 0 MSEC
STACK COUNT 1
FILTER IN

SP-11 LF
2:00 PM
12/23/87

Outside

EGG GEOMETRICS
EST-125
VERSION 2.0

FILE NO 1463
RECORD TIME 250 MSEC
DELAY TIME 0 MSEC
STACK COUNT 1
FILTER IN

SP-11 F
2:05 PM
12/23/87

Outside
AR301019

EG26 GEOMETRICS
 ES-12270N 2.0
 FILE NO 1463
 RECORD TIME 12:39:00
 250 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

SP-12 LR
 2:45PM
 12/23/67

Outside

EG26 GEOMETRICS
 ES-1225 GEOMETRIC 2.0
 FILE NO 1463
 RECORD TIME 12:39:00
 250 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

SP-12 R
 2:39
 12/23/67

Outside
 STACK COUNT 1
 FILTER IN

AR301020

Egg Geometrics

ES-125
Version 2.0
FILE NO 1463

RECORD TIME
250 MSEC
SP-12 LF

2:33 PM

12/12/87

DELAY TIME
0 MSEC
1 36 2

STACK COUNT
1 2 42 9

CH 01 TS
3 48 14

CH 02 TS
4 54 13

CH 03 TS
5 60 12

CH 04 TS
6 60 16

CH 05 TS
7 60 16

CH 06 TS
8 60 16

CH 07 TS
9 60 16

CH 08 TS
10 60 16

CH 09 TS
11 60 17

CH 10 TS
12 60 13

FILTER IN

Outside

Egg Geometrics

ES-125
Version 2.0
FILE NO 1463

RECORD TIME
250 MSEC
SP-12 LF

2:30 PM

12/12/87

DELAY TIME
0 MSEC
1 60 11

STACK COUNT
2 60 12

CH 01 TS
3 60 14

CH 02 TS
4 60 11

CH 03 TS
5 60 12

CH 04 TS
6 60 11

CH 05 TS
7 60 14

CH 06 TS
8 60 13

CH 07 TS
9 60 14

CH 08 TS
10 60 13

CH 09 TS
11 60 13

CH 10 TS
12 60 13

FILTER IN

Outside

AR301021

EEG&GEOMETRICS

EST-1255 VERSION 2.0

FILE NO 1463

RECORD TIME

250 MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

FILTER IN

6 60 14

7 60 14

8 60 18

9 60 17

10 60 17

11 60 16

12 60 17

CH GN TS

1 36 9

2 42 9

3 48 8

4 54 15

5 60 13

6 60 14

7 60 18

8 60 18

9 60 18

10 60 18

11 60 19

12 60 18

SP-13F

3:27 PM

12/23/87

Outside

EEG&GEOMETRICS

EST-1255 VERSION 2.0

FILE NO 1463

RECORD TIME

250 MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

FILTER IN

6 60 17

7 60 18

8 60 18

9 60 18

10 60 18

11 60 19

12 60 18

CH GN TS

1 60 14

2 60 16

3 60 18

4 60 18

5 60 18

6 60 18

7 60 18

8 60 18

9 60 18

10 60 18

11 60 19

12 60 18

Outside

SP-13 LF

3:23 PM

12/23/87

AR30T022

E&G GEOMETRICS
EST-1255
VERSION 2.0

FILE NO 1463

RECORD TIME 13:41 PM

250 MSEC.

DELAY TIME 0 MSEC

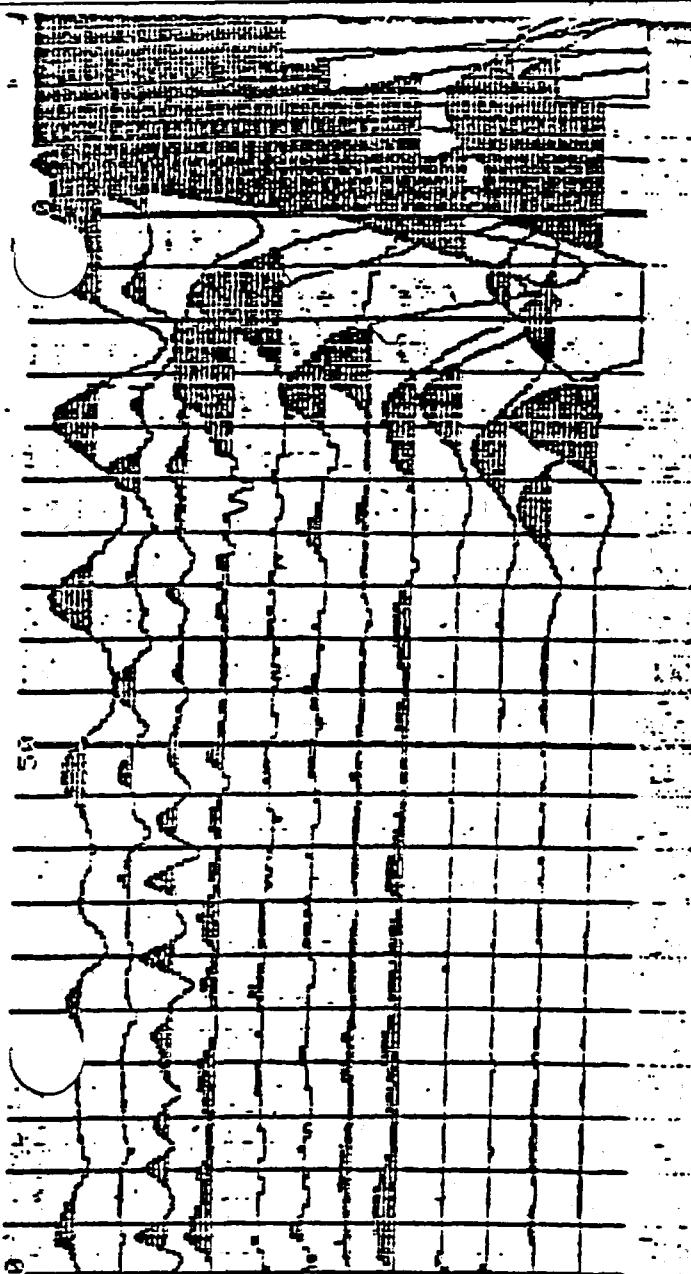
STACK COUNT 1

FILTER IN 12:35

13LR

3:41 PM
12/23/87

Outside



E&G GEOMETRICS
EST-1255
VERSION 2.0

FILE NO 1463

RECORD TIME 13:41 PM

250 MSEC

DELAY TIME 0 MSEC

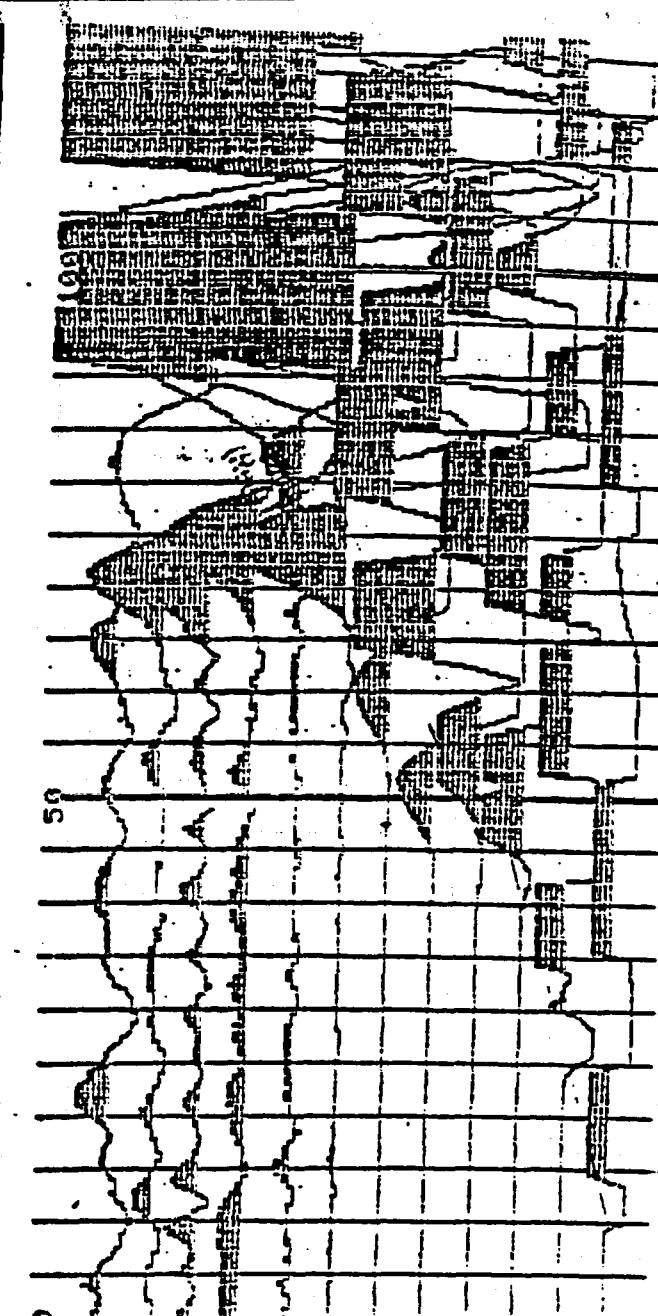
STACK COUNT 1

FILTER IN 12:36

SP-13R

3:35
12/23/87

Outside



E&G GEOMETRICS
EST-1255
VERSION 2.0

FILE NO 1463

RECORD TIME 13:42 PM

250 MSEC

DELAY TIME 0 MSEC

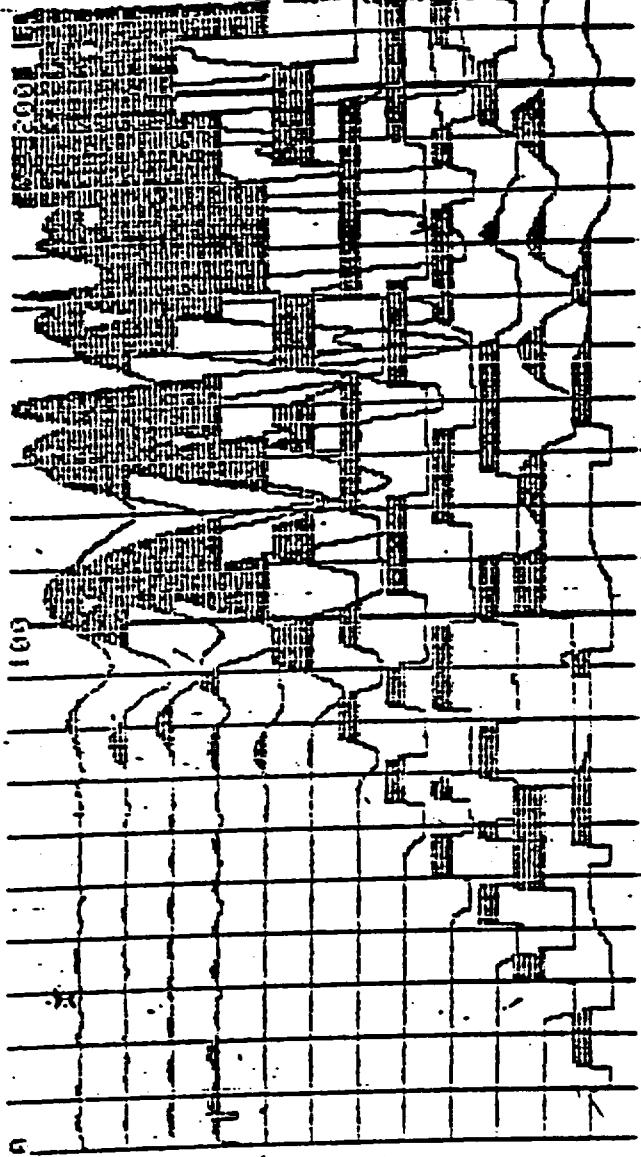
STACK COUNT 1

FILTER IN 12:36

AR30±023

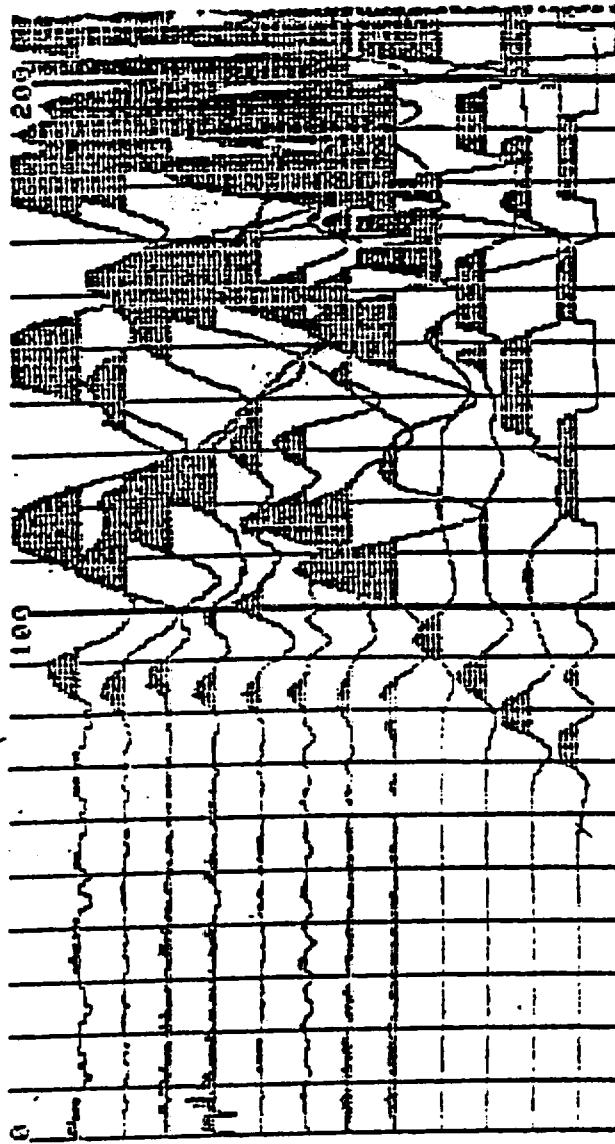
3:35
12/23/87

Outside



EGG GEOMETRICS
 EST-VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

SP-19 R
 9:43 AM
 12/28/87
 DORNEY LANDFILL
 Outside

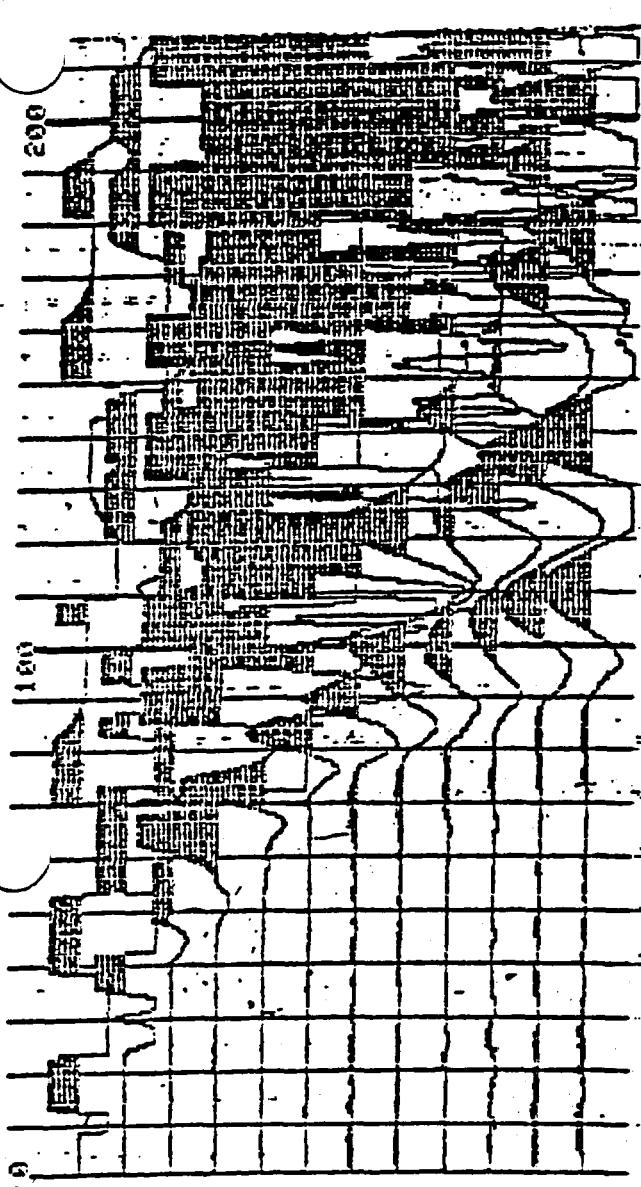


EGG GEOMETRICS
 EST-VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

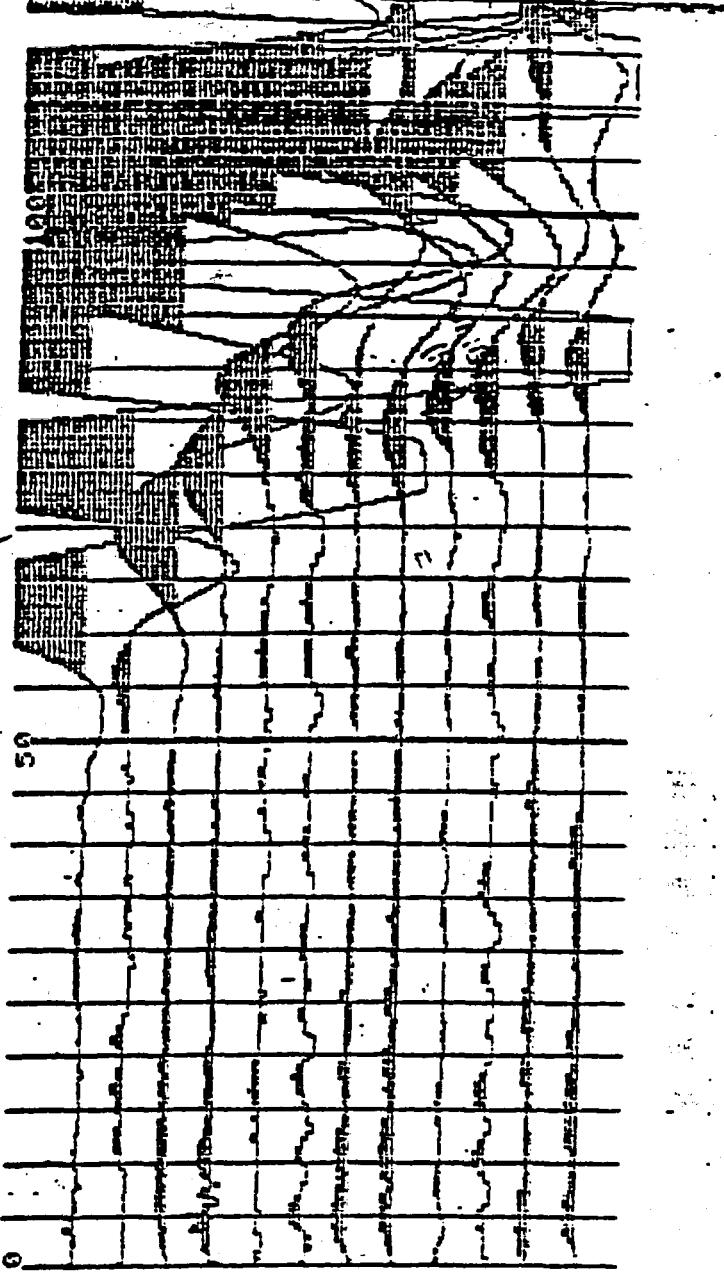
SP-19 LR
 9:53 AM
 12/28/87
 DORNEY
 LANDFILL
 Outside

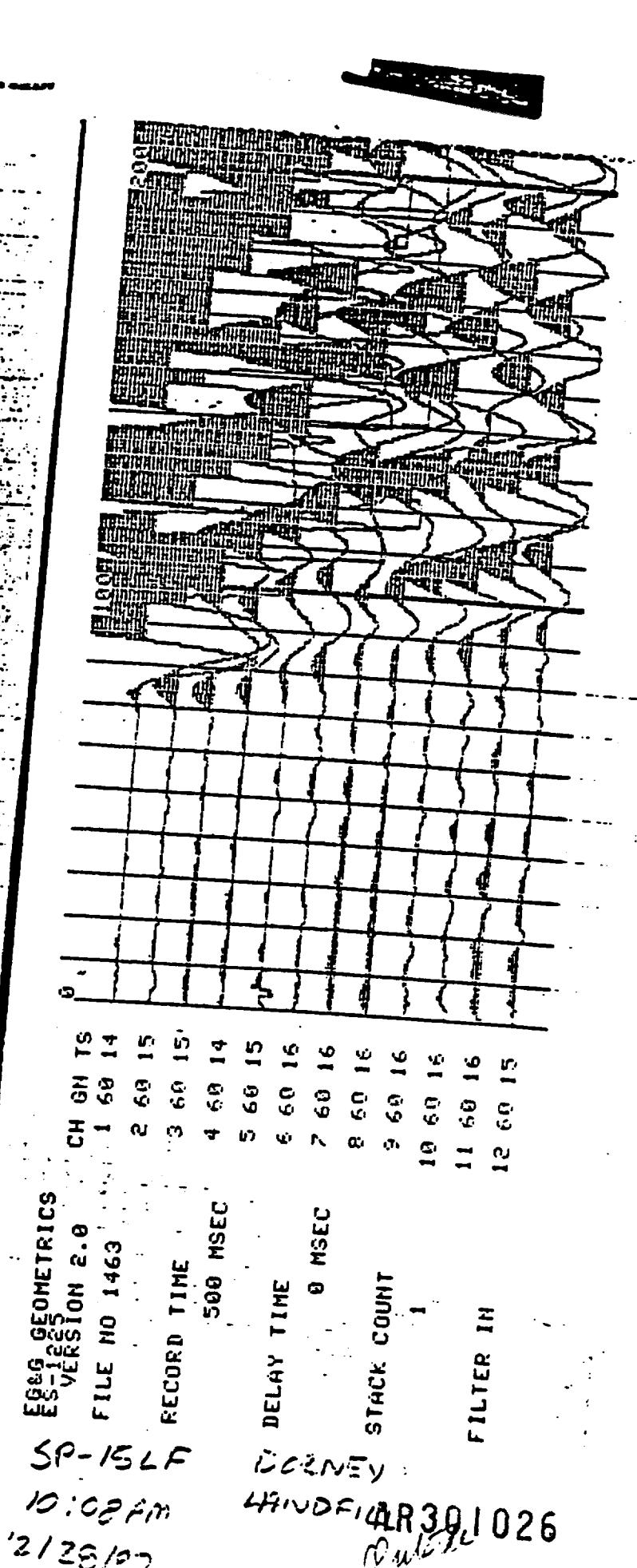
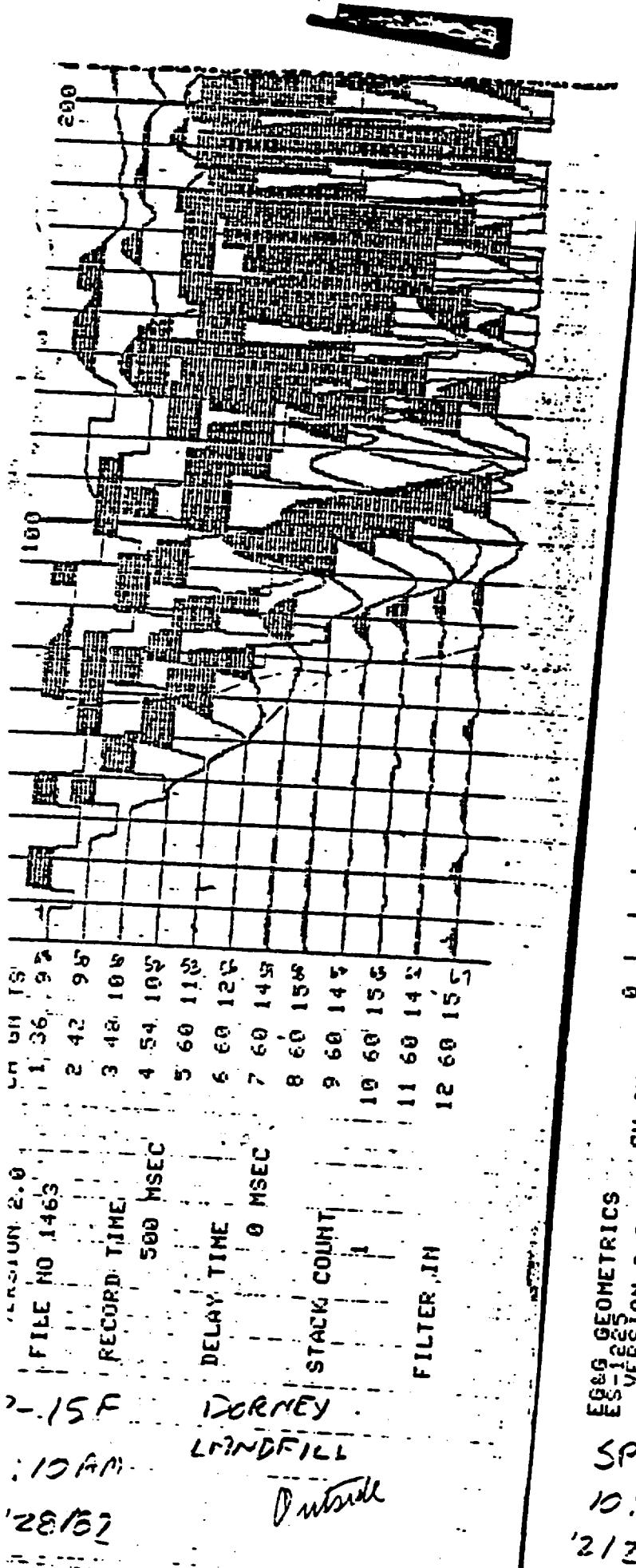
AR301024

EGG-125 GEOMETRICS
 VERSION 2.0 CH GN TS
 FILE NO. 1463 1 36 9
 RECORD TIME 2 42 19
 4500 MSEC 3 48 8
 DELAY TIME 4 54 12
 0 MSEC 5 60 12
 STACK COUNT 6 60 13
 1 7 60 14
 8 60 14
 9 60 14
 10 60 14
 11 60 14
 12 60 15
 FILTER IN
 SP-14 F DORNEY LANDFILL
 9:36 AM RCL LENGTH = 500ms
 12/28/82 8m



EGG-125 GEOMETRICS
 VERSION 2.0 CH GN TS
 FILE NO. 1463 1 60 16
 RECORD TIME 2 60 19
 250 MSEC 3 60 16
 DELAY TIME 4 60 16
 0 MSEC 5 60 16
 STACK COUNT 6 60 18
 7 60 17
 8 60 17
 9 60 17
 10 60 18
 11 60 17
 12 60 17
 FILTER IN
 SP-14 LF DORNEY LANDFILL
 9:26 AM AR 30.1025
 12/28/82





EG&G GEOMETRICS
EST-1225
VERSION 2.0

FILE NO 1463

RECORD TIME

500 MSEC

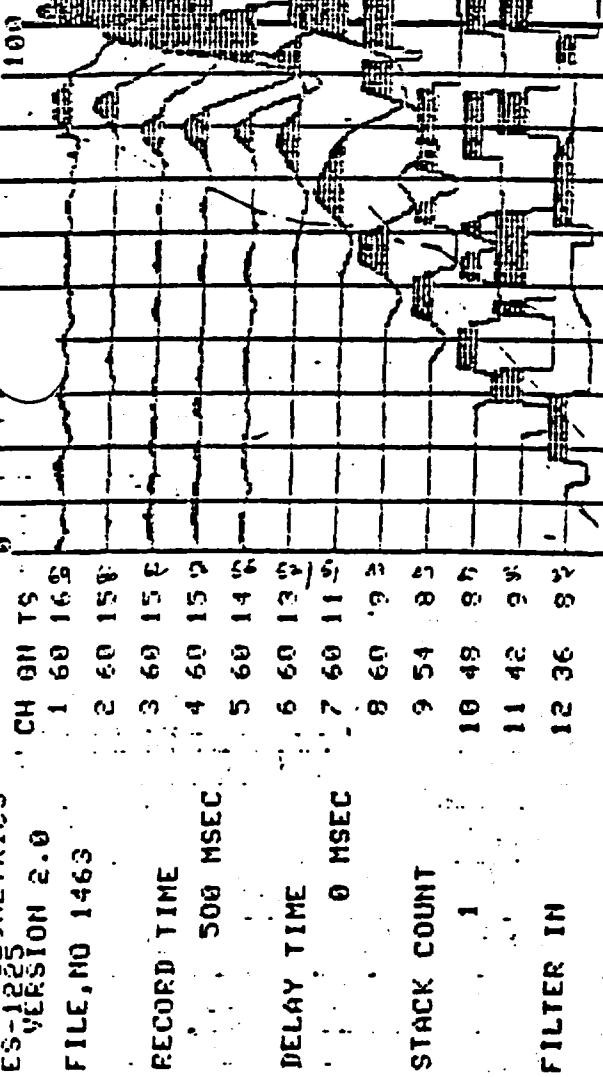
DELAY TIME

0 MSEC

STACK COUNT

1

FILTER IN



SP-15R
17AM
12/28/87

DORNEY
LANDFILL

Onsite

EG&G GEOMETRICS
EST-1225
VERSION 2.0

FILE NO 1463

RECORD TIME

500 MSEC

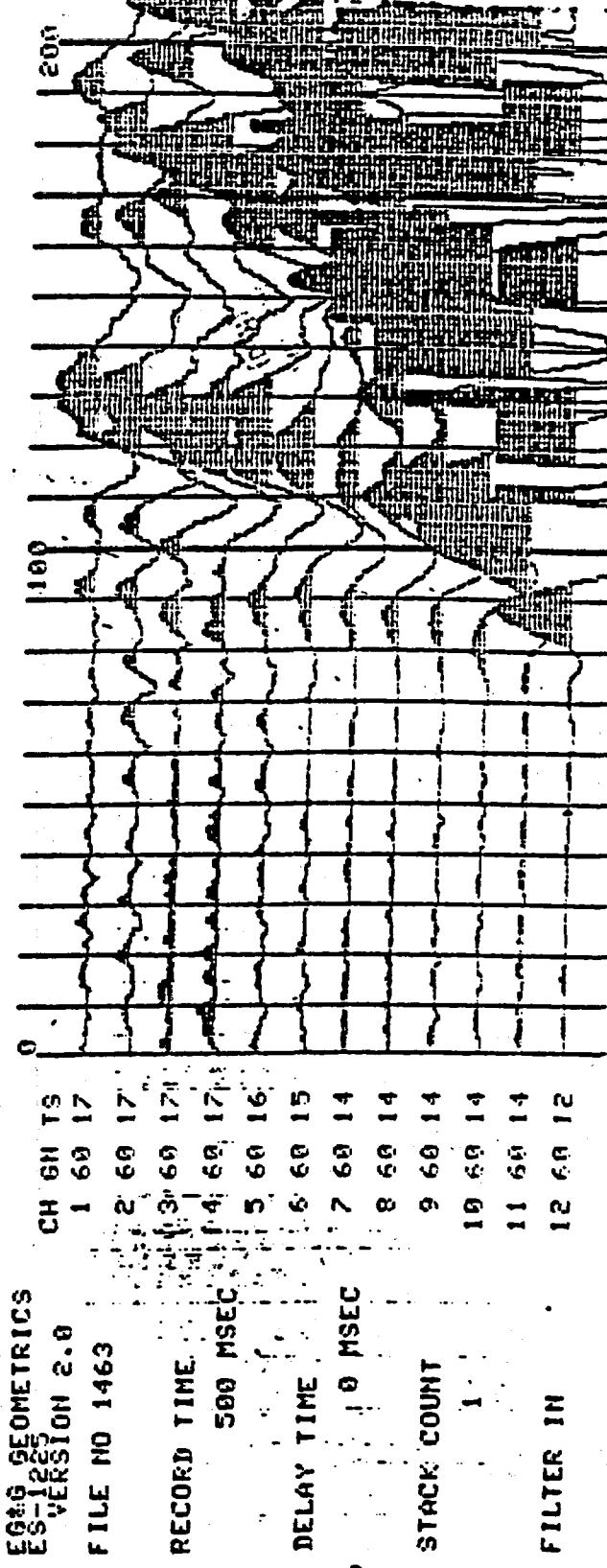
DELAY TIME

0 MSEC

STACK COUNT

1

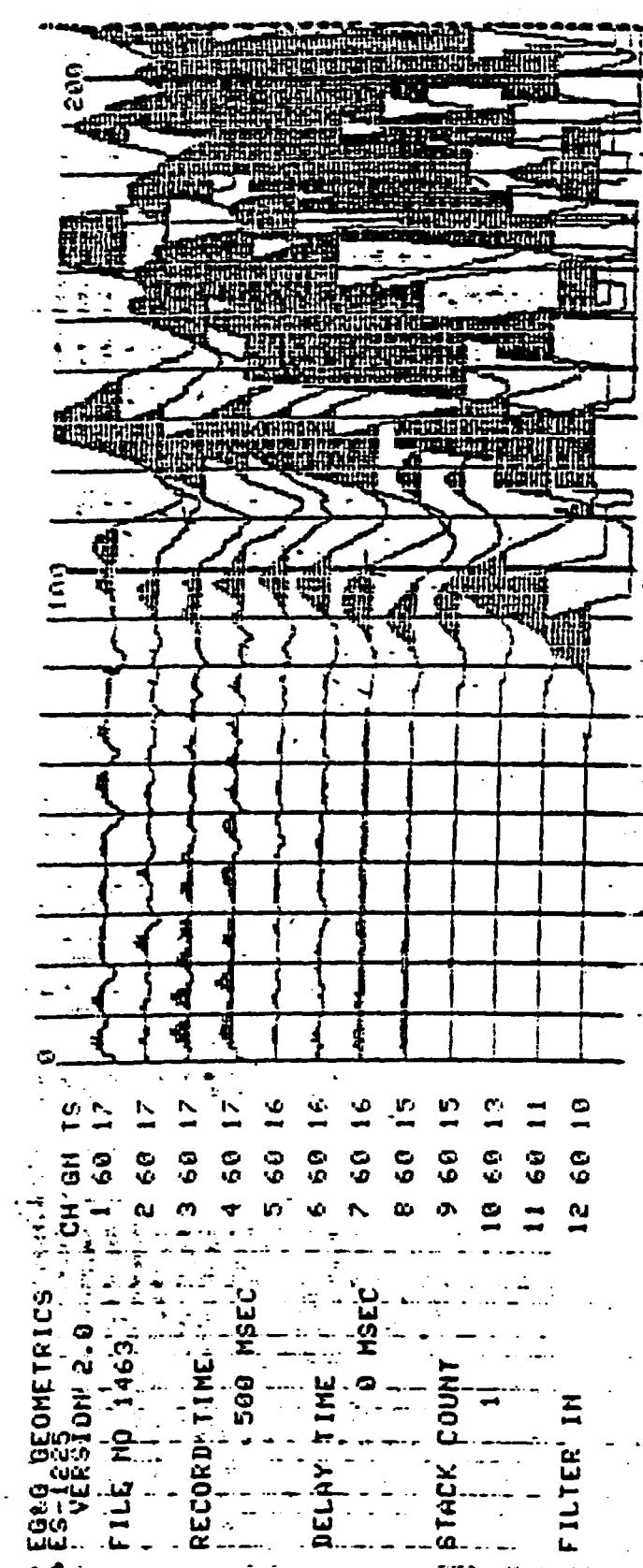
FILTER IN



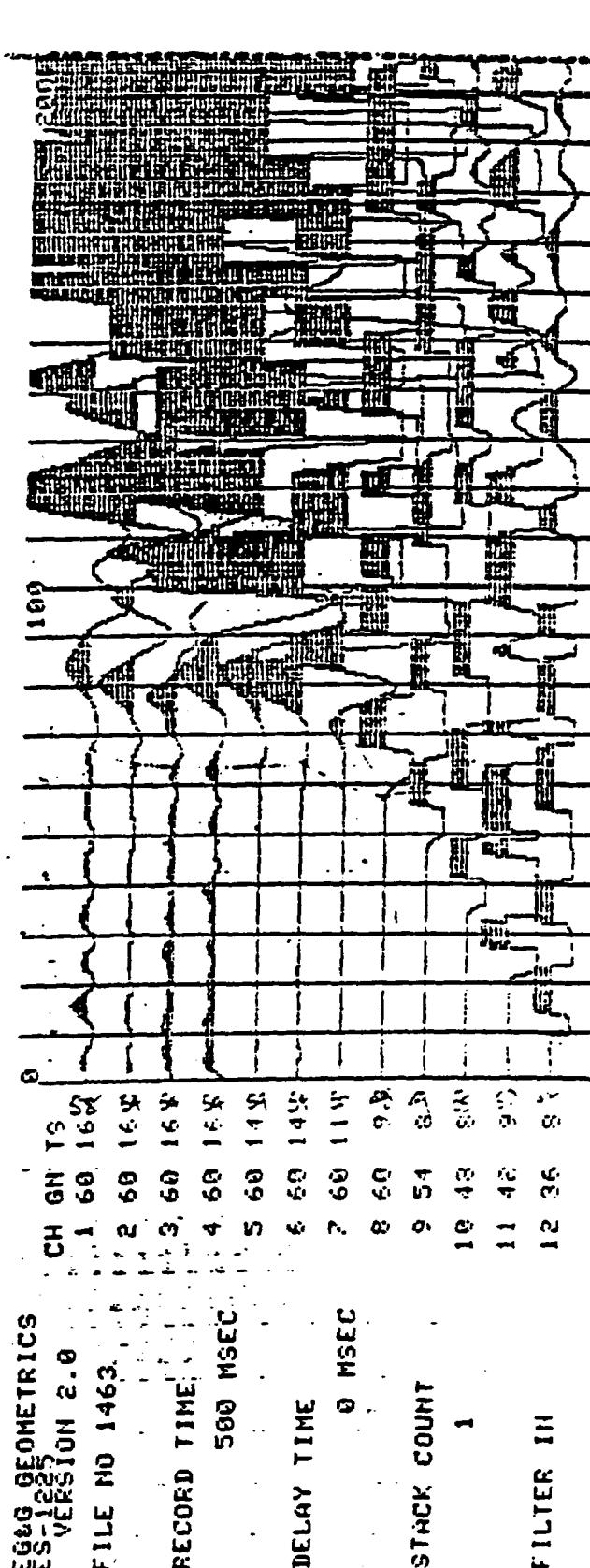
SP-15 LR
10:30AM
12/28/87

DORNEY
LANDFILL
Onsite

AR301027



SP-16 LR DORNEY
11:17 AM 12/28/87
LBNFILL Outside



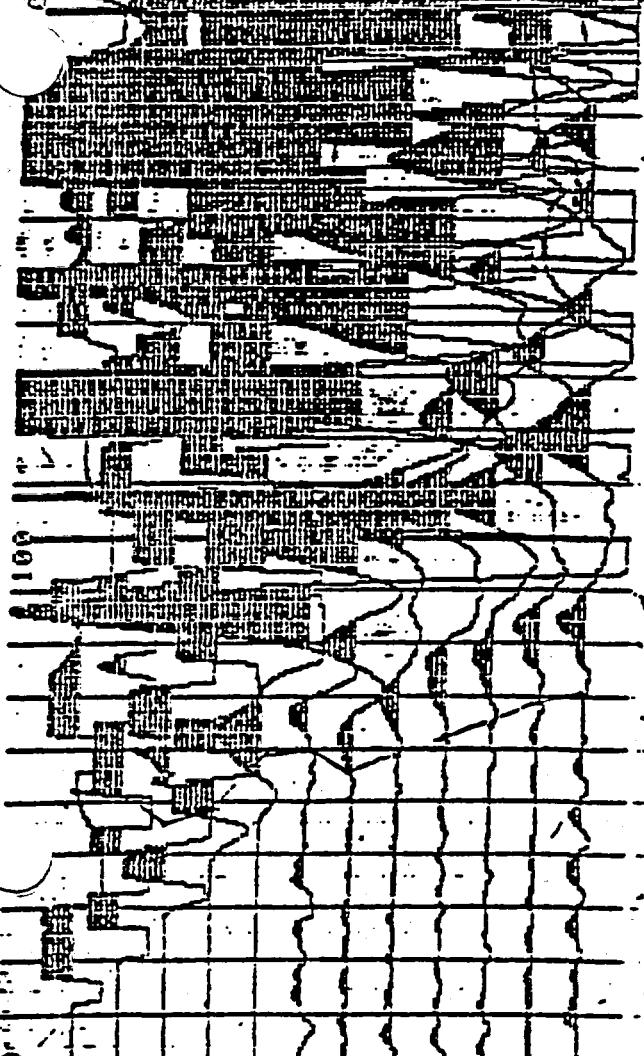
SP-16 LR DORNEY
11:12 AM 12/28/87
LBNFILL Outside

AR301028

EG&G GEOMETRICS

EST-1225
VERSION 2.0
FILE NO 1463

RECORD TIME 12:34:48 104
500 MSEC 14 54 108
DELAY TIME 6 60 165
0 MSEC 7 60 148
STACK COUNT 9 60 145
1 10 60 156
11 60 145
FILTER IN 12 60 158



SP-16F
11:09 AM
12/28/18

DORNEY
LANDFILL
Outside

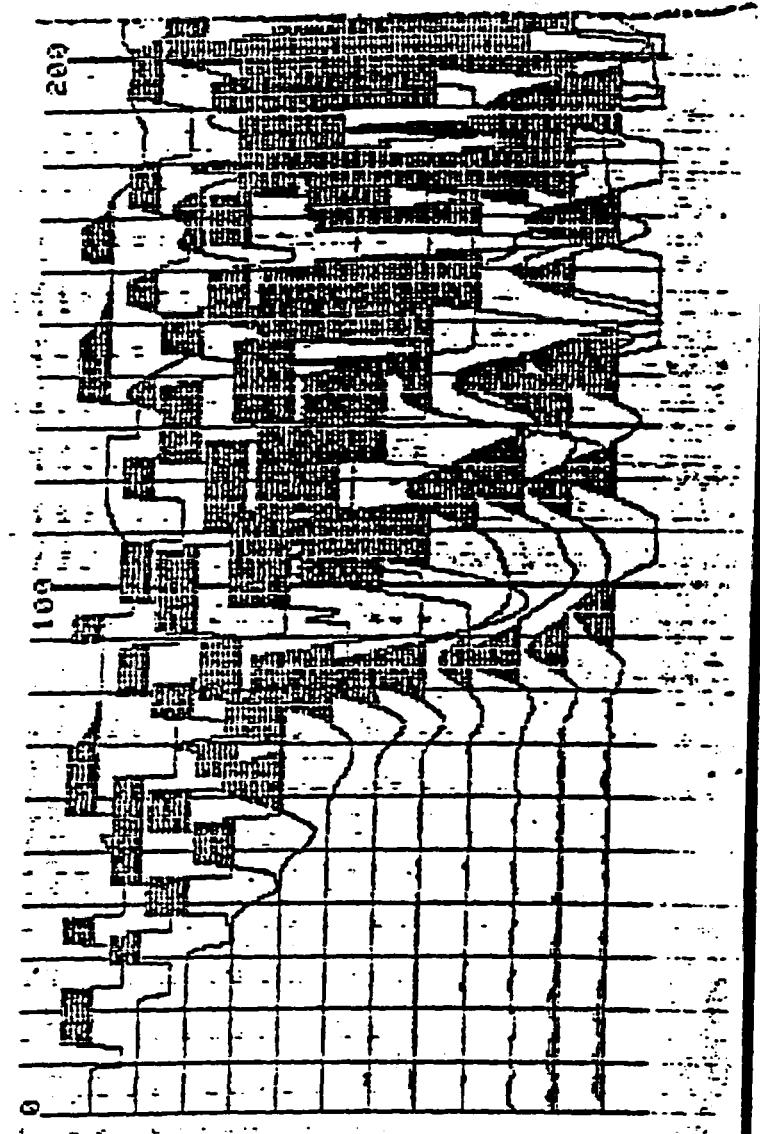
EG&G GEOMETRICS

EST-1225
VERSION 2.0
FILE NO 1463

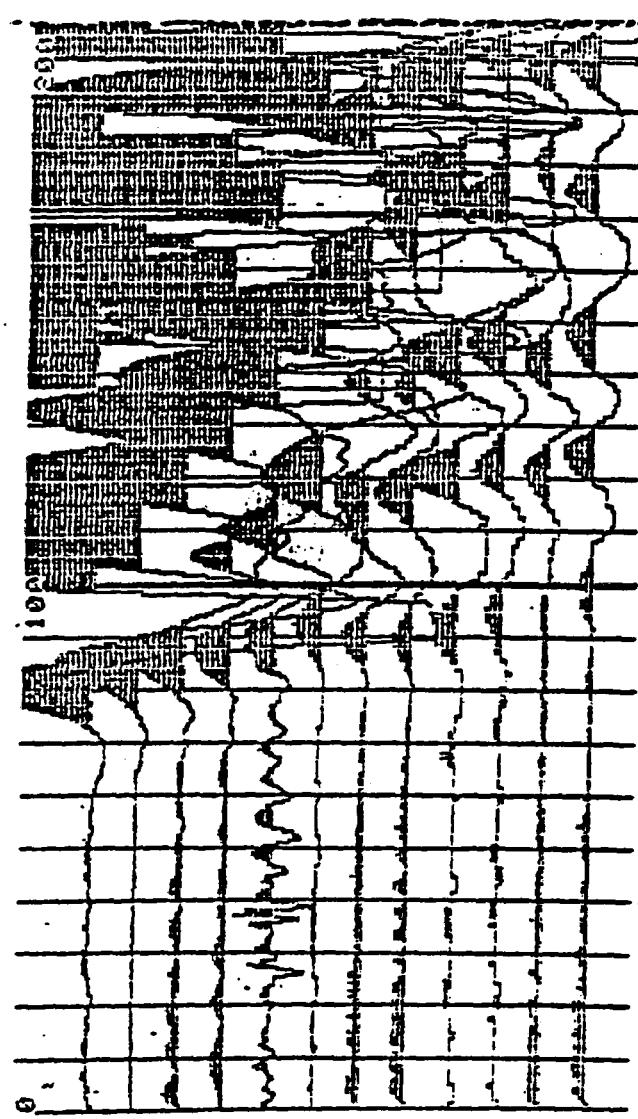
RECORD TIME 12:34:48 104
500 MSEC 14 60 166
DELAY TIME 6 60 166
0 MSEC 7 60 146
STACK COUNT 9 60 166
1 10 60 171
11 60 166
FILTER IN 12 60 166

SP-16LC
11:03 AM
12/28/18
DORNEY
LANDFILL
Outside

AR30T029



SP-17F DORNEY
11:43 AM LANDFILL
12/28/82 Outside



EG&G GEOMETRICS	CH	GN	TS
ES-1225	1	60	16
VERSION 2.0			
FILE NO 1463	2	60	15
RECORDED TIME	3	60	16
500 MSEC	4	60	16
DELAY TIME	5	60	16
6 MSEC	6	60	17
7 MSEC	7	60	17
8 MSEC	8	60	17
STACK COUNT	9	60	19
1	10	60	19
FILTER IN	11	60	17
	12	60	17

SP-17 LF DORNEY
11:41 AM LINDEN
12/28/83 OUTDOOR

AR301030

EG&G GEOMETRICS
 ES-1225
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN 12 36 8

SP-17R
 11:47 AM
 12/28/83

DORNEY
 Landfill
 Outside

EG&G GEOMETRICS
 ES-1225
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN 12 60 8

SP-17 LR
 11:52 AM
 12/28/83

DORNEY
 Landfill
 Outside

AR30103T

EG&G GEOMETRICS

EST-VERSION 2.0

FILE NO 1463

RECORD TIME 0 MSEC

500 MSEC

DELAY TIME 0 MSEC

10 MSEC

STACK COUNT 1

10 MSEC

FILTER IN 1

0 MSEC

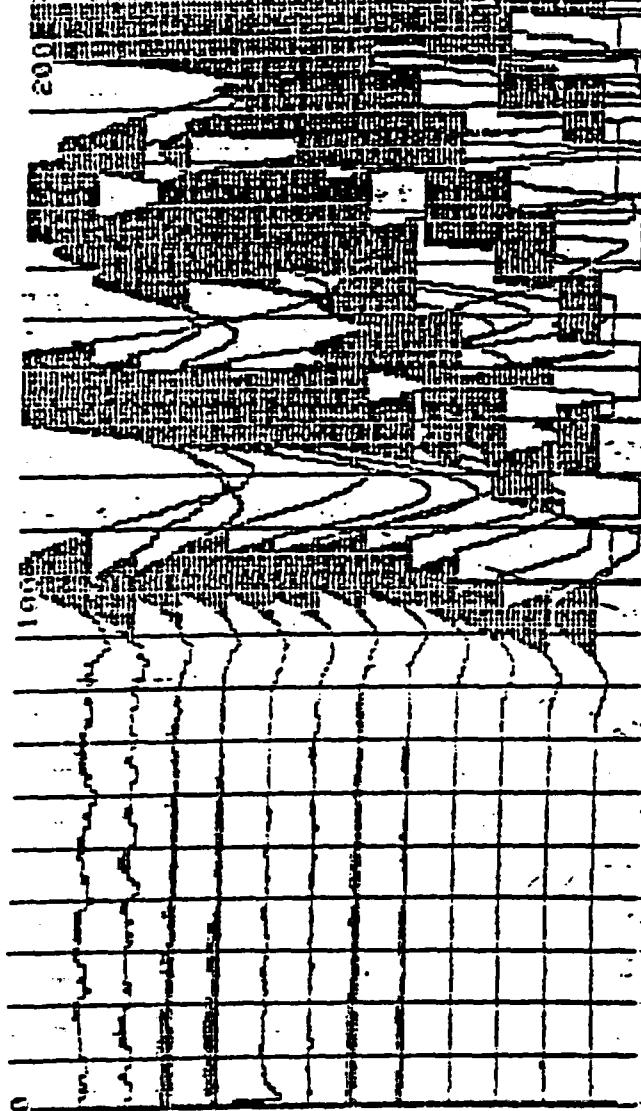
10 MSEC

14 MSEC

12 MSEC

10 MSEC

12 MSEC

SP-18 LR
10:20 AM
12/29/67DOROTHY
LINDSEY
Outside

EG&G GEOMETRICS

EST-VERSION 2.0

FILE NO 1463

RECORD TIME 0 MSEC

500 MSEC

DELAY TIME 0 MSEC

10 MSEC

STACK COUNT 1

10 MSEC

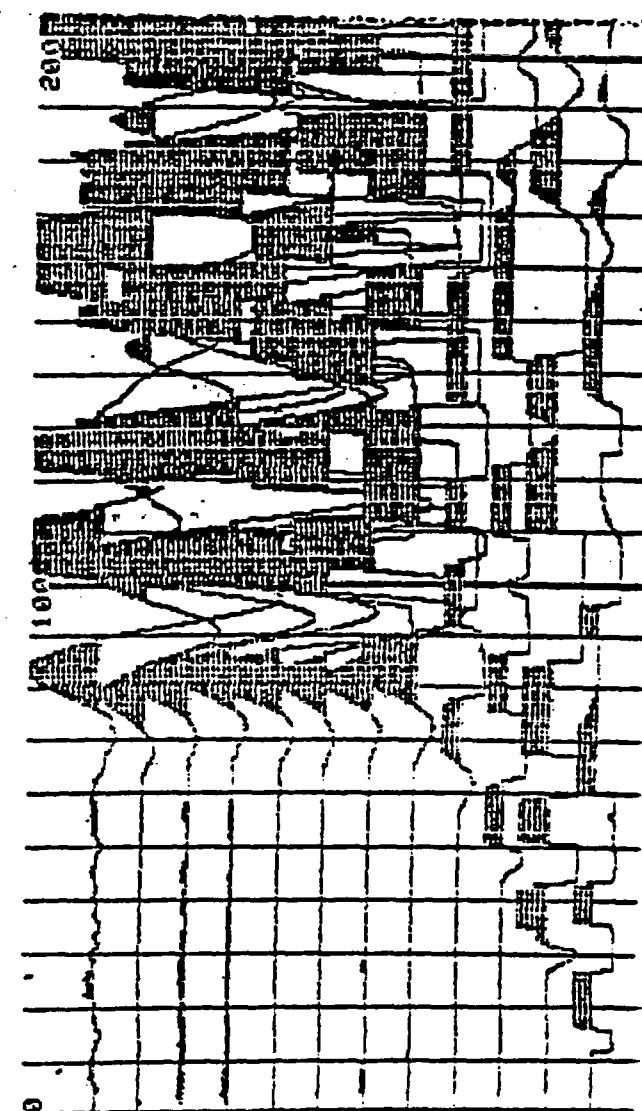
12 MSEC

10 MSEC

12 MSEC

10 MSEC

12 MSEC

SP-18 R
10:22 AM
12/29/67DOROTHY
LINDSEY
Outside

AR301032

Egg Geometrics
Est-1225
Version 2.0
FILE NO 1463

RECORD TIME

500 MSEC

DELAY TIME 0 MSEC

STACK COUNT 1

FILTER IN 10 60 16
11 60 16
12 60 15

SP-18 LF
(0:17 AM
12/29/87

DOROTHY
LAIRD STILLE

Onsite

Egg Geometrics

EST-1225
Version 2.0

FILE NO 1463

RECORD TIME

500 MSEC

DELAY TIME 0 MSEC

STACK COUNT 1

FILTER IN 6 60 12
7 60 13
8 60 14
9 60 15
10 60 16
11 60 16
12 60 15

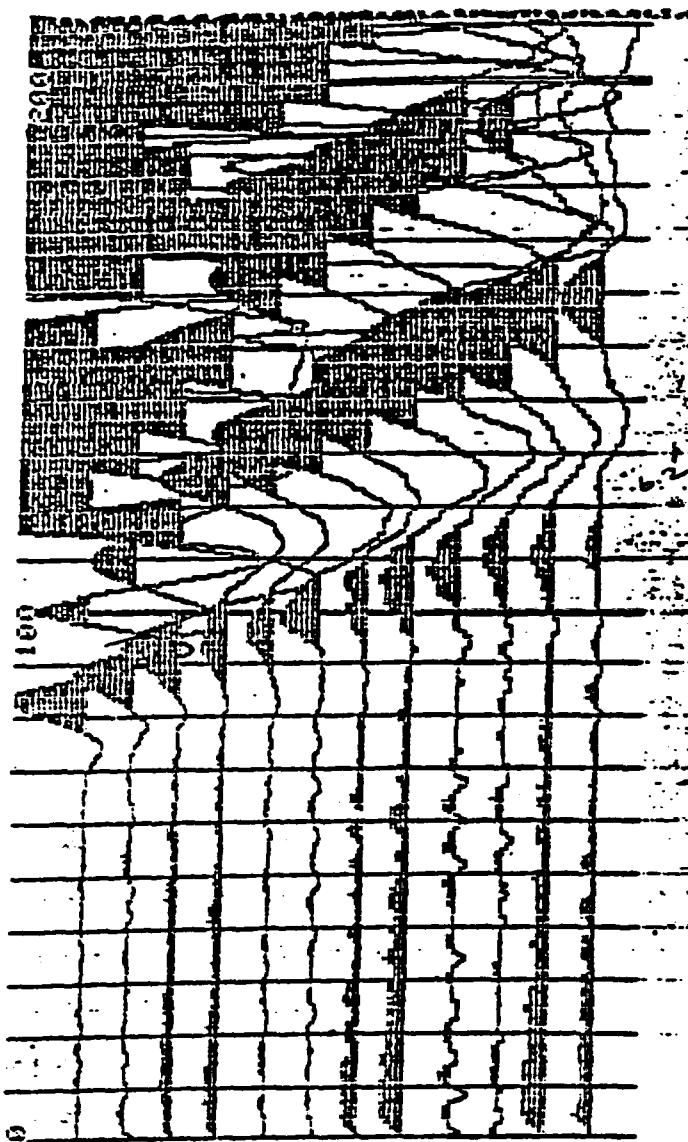
SP-18F
10:19 AM
12/29/87

Dorothy
LAIRD STILLE

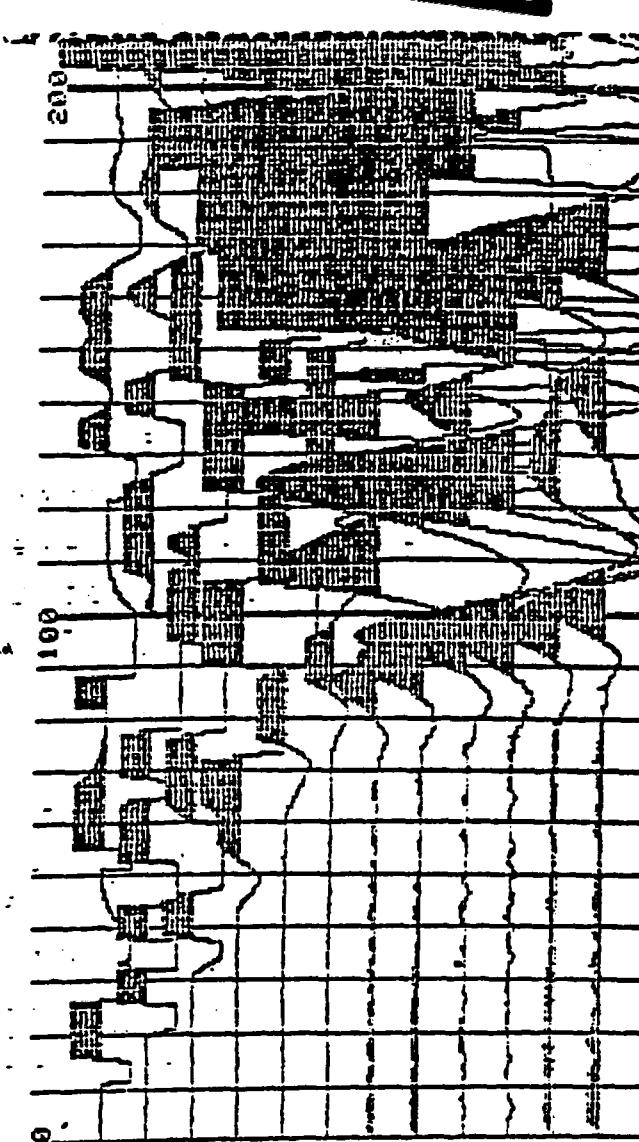
022
032
1163

AR301033

EGG GEOMETRICS
 EST-1285 VERSION 2.0
 FILE NO 1463
 RECORD TIME 10:37 AM 12/29/87
 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN 12 60 17
 SP-10 LF DORNEY LANDFILL Outside



EGG GEOMETRICS
 EST-1285 VERSION 2.0
 FILE NO 1463
 RECORD TIME 10:40 AM 12/29/87
 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN 12 60 16
 SP-10 LF DORNEY LANDFILL Outside



AR301034

EG&G GEOMETRICS
EST-12523 VERSION 2.0

FILE NO 1463

RECORD TIME

500. MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

FILTER IN

10 48 8

11 42 9

12 36 8

SP-19R

DORNEY

10:42AM 12/29/67

LINDFIELD

Ontario

EG&G GEOMETRICS
EST-12523 VERSION 2.0

FILE NO 1463

RECORD TIME

500. MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

FILTER IN

10 60 13

11 60 11

12 60 10

SP-19LR

10:43 AM

DORNEY

LINDFIELD

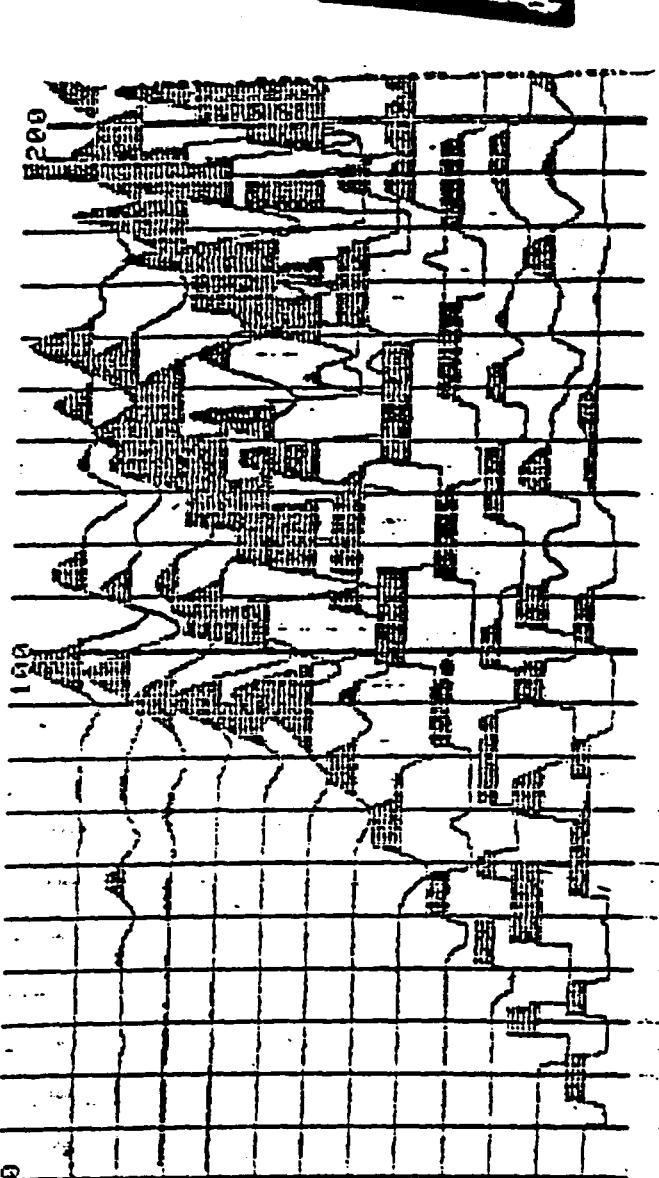
Ontario

AR301035

EG&G GEOMETRICS
 EST-1225 VERSION 2.0
 FILE NO 1463
 RECORD TIME 11:19 AM
 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 9
 FILTER IN

SP-20 R
 11:19 AM
 12/29/87

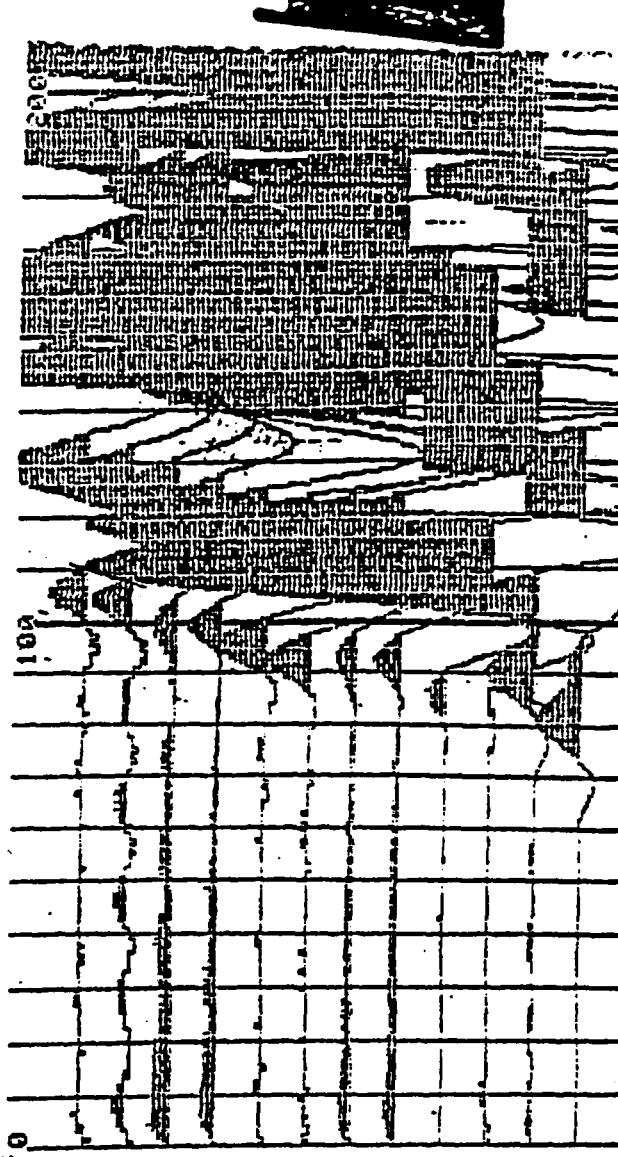
DORNEY
 LANDFILL
 Outside



EG&G GEOMETRICS
 EST-1225 VERSION 2.0
 FILE NO 1463
 RECORD TIME 11:18 AM
 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 9
 FILTER IN

SP-20 LR
 11:18 AM
 12/29/87

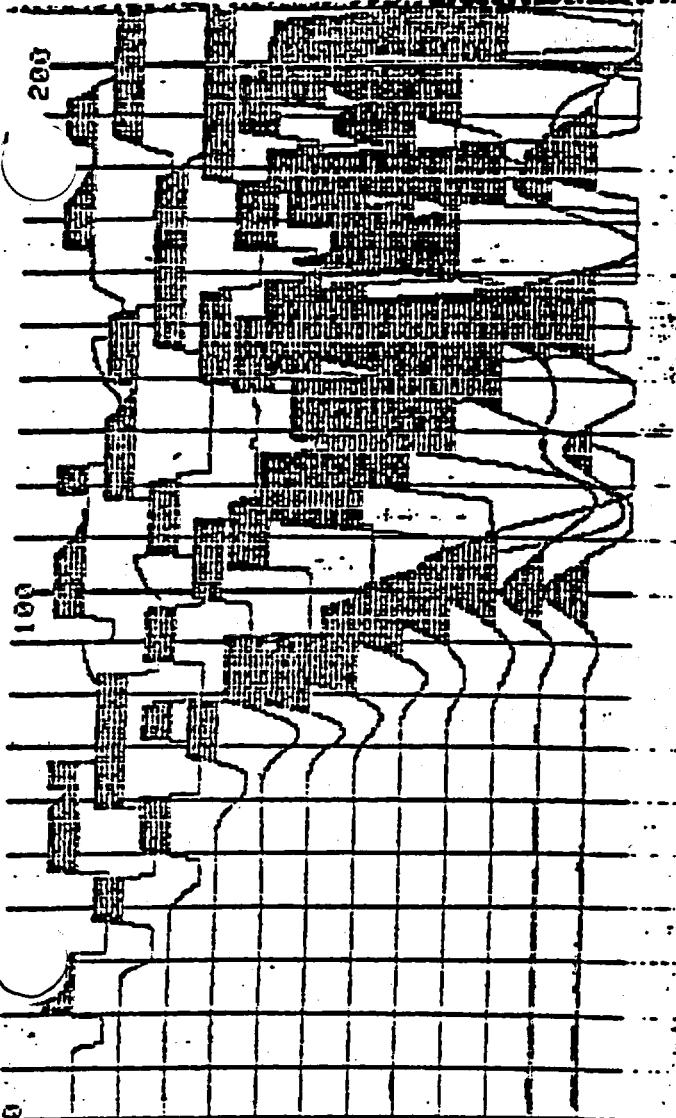
DORNEY
 LANDFILL
 Outside



AR301036

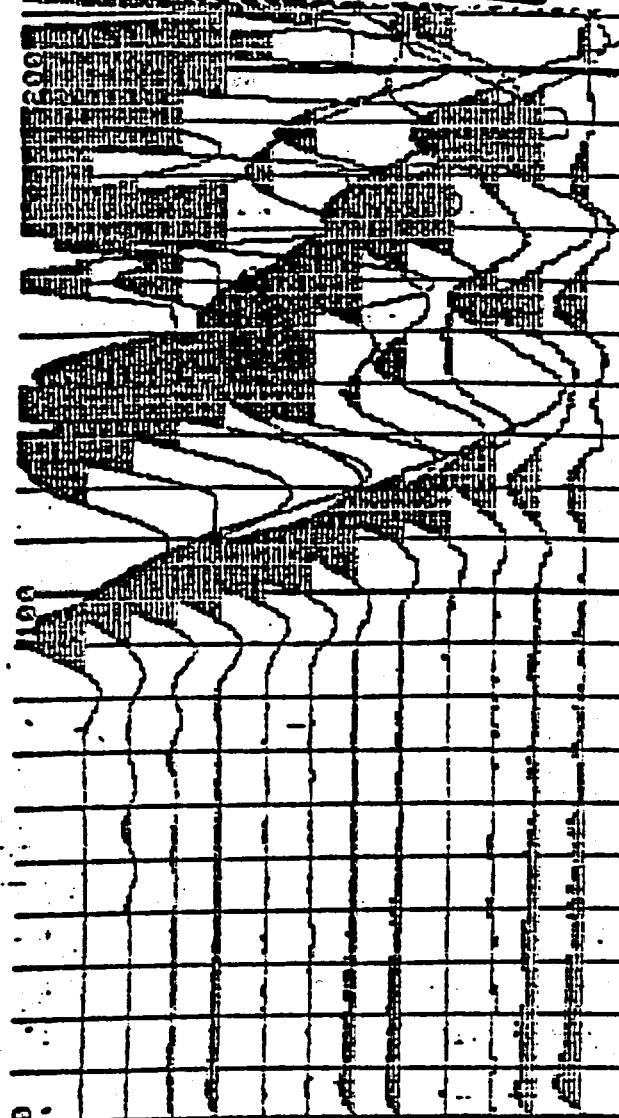
EGG GEOMETRICS
VERSION 2.0
FILE NO 1463
RECORD TIME
500 MSEC
DELAY TIME
0 MSEC
STACK COUNT
1
FILTER IN

NOF
DORNEY
LANDFILL
11/2 AM
12/29/87



EGG GEOMETRICS
VERSION 2.0
FILE NO 1463
RECORD TIME
500 MSEC
DELAY TIME
0 MSEC
STACK COUNT
1
FILTER IN

SF-20LF
11:10 AM
12/29/87
DORNEY
LANDFILL
Filter

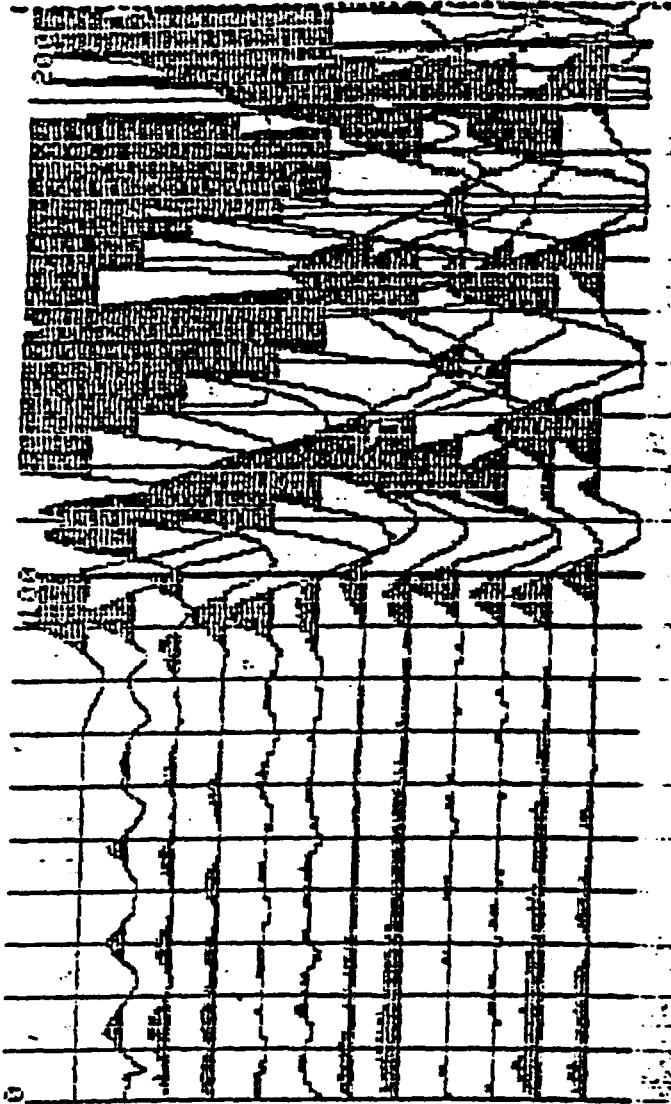


AR301037

EG&G GEOMETRICS
ES-1225 VERSION 2.0
FILE NO 1463
SP-21 LF
11:35 AM
12/29/87

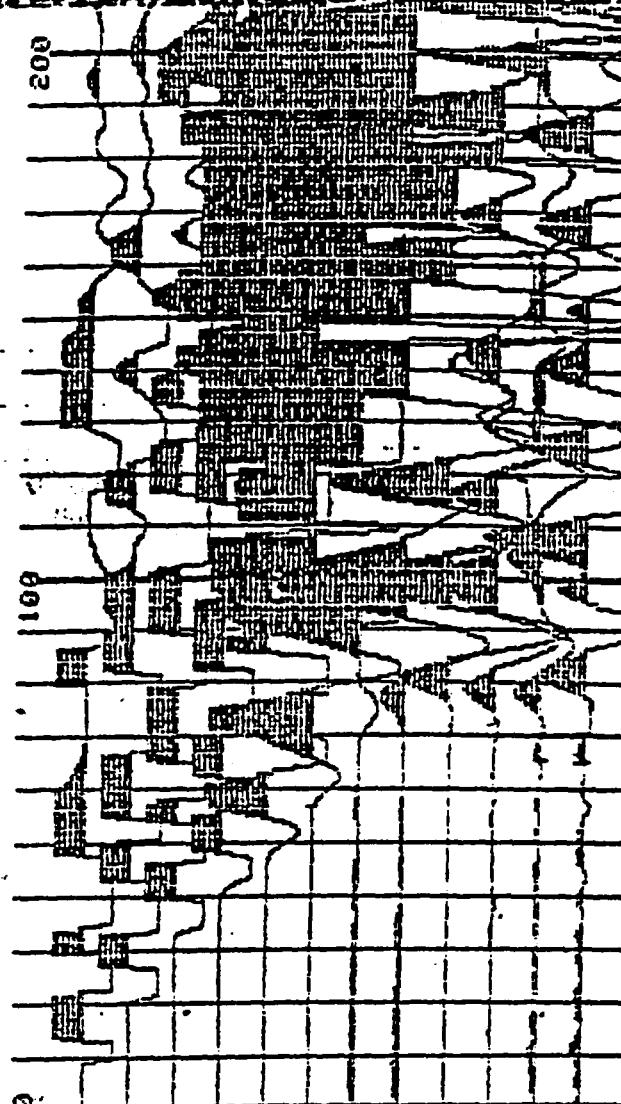
DELAY TIME 0 MSEC
STACK COUNT 1
FILTER IN

DORNEY
LANDFILL
Outline



EG&G GEOMETRICS
ES-1225 VERSION 2.0
FILE NO 1463
RECORD TIME 500 MSEC
DELAY TIME 0 MSEC
STACK COUNT 1
FILTER IN

S-21F DORNEY
11:38 AM LANDFILL
12/29/87 Outline



AR301038

EG&G GEOMETRICS
EST-1255 VERSION 2.04
FILE NO. 1463
RECORD TIME 500 MSEC
DELAY TIME 0 MSEC
STACK COUNT 1
FILTER IN

SP-21R
11:42AM
12/29/83

DORNEY
LINDFILL
Outside

EG&G GEOMETRICS
EST-1255 VERSION 2.04
FILE NO. 1463
RECORD TIME 500 MSEC
DELAY TIME 0 MSEC
STACK COUNT 1
FILTER IN

SP-21 LR
11:45 AM
12/29/83

DORNEY
LINDFILL
Outside

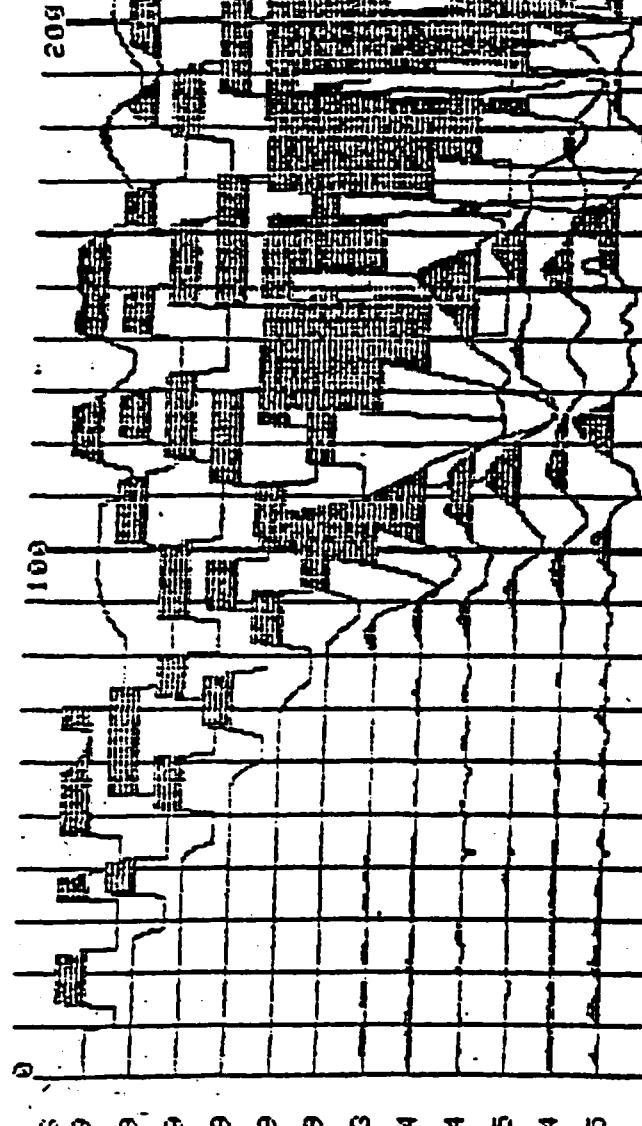
AR301039

EG&G GEOMETRICS

ES-1225 VERSION 2.0
FILE NO 1463RECORD TIME 0 MSEC
500 MSECDELAY TIME 0 MSEC
0 MSEC

STACK COUNT 1

FILTER IN



SP-22F

11:59AM

12/27/87

DORNEY

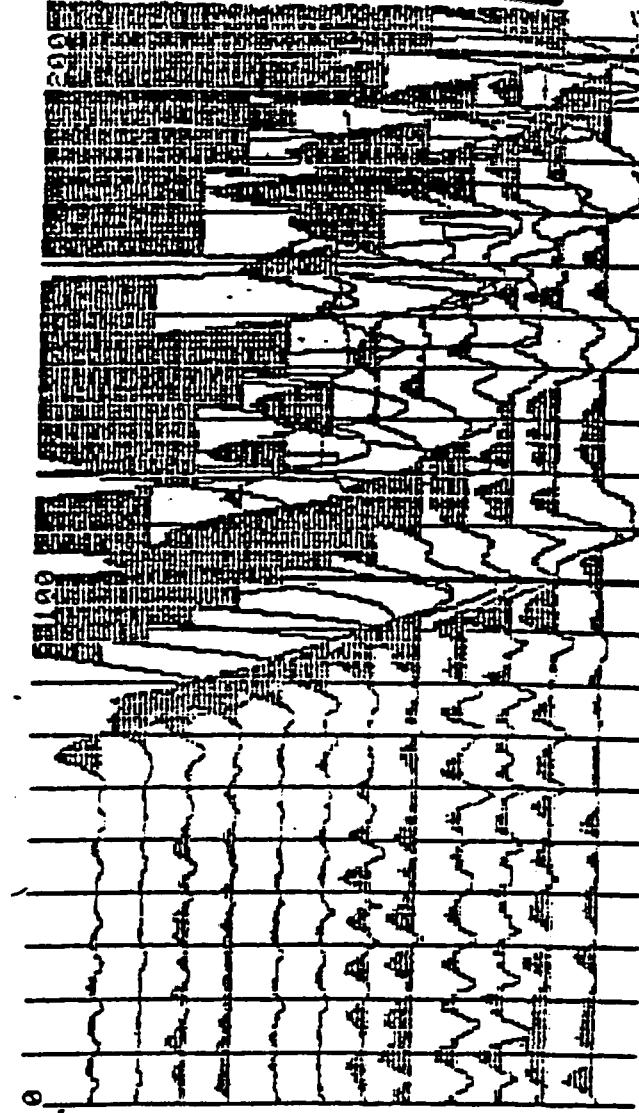
LANDFILL

Outside

EG&G GEOMETRICS
ES-1225 VERSION 2.0FILE NO 1463
RECORD TIME 0 MSEC
500 MSECDELAY TIME 0 MSEC
0 MSEC

STACK COUNT 1

FILTER IN



SP-22LF

11:57AM

12/27/87

DORNEY

LANDFILL

Outside

AR301040

E&G GEOMETRICS
VERSION 2.0
FILE NO 1463

RECORD TIME

500 MSEC

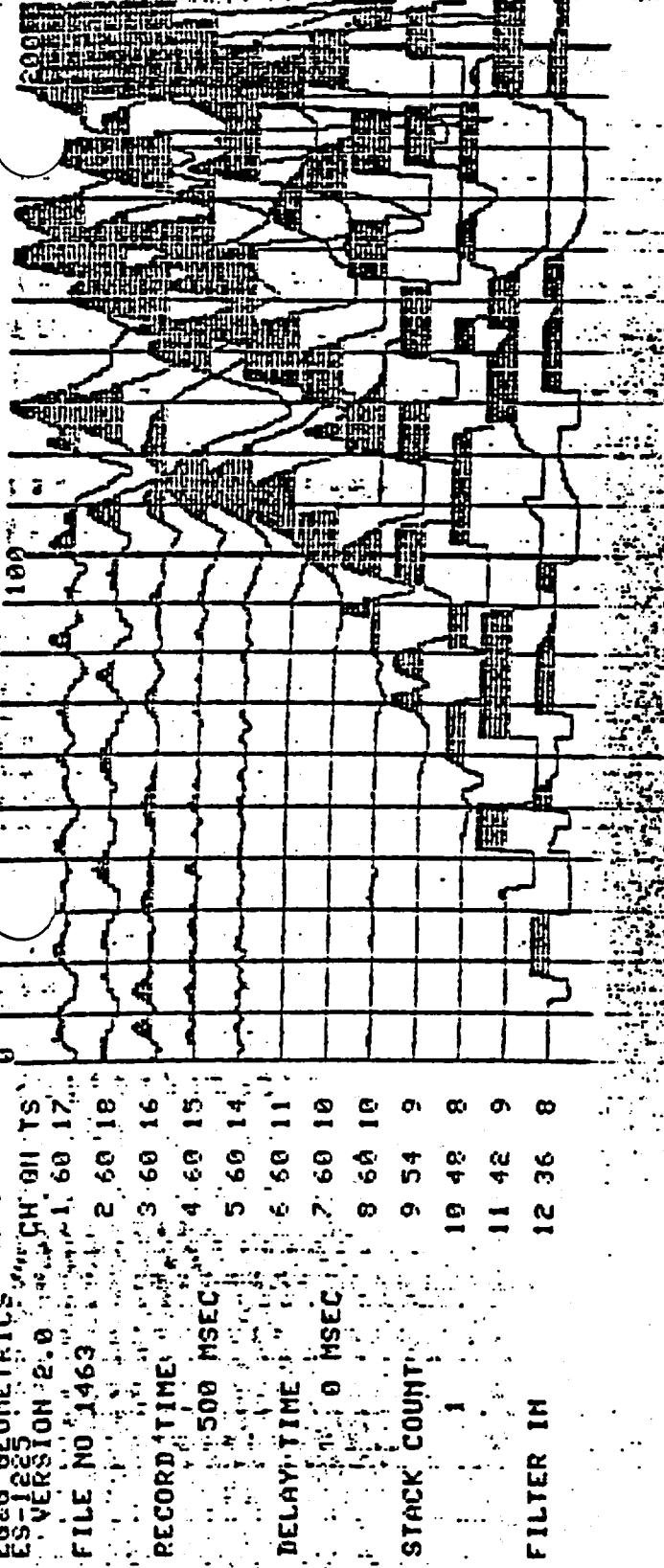
DELAY TIME

0 MSEC

STACK COUNT

1

FILTER IN



SP-22R

DORNEY

2:02 PM

LANDFILL

12/29/87

Outside

E&G GEOMETRICS
VERSION 2.0

FILE NO 1463

RECORD TIME

500 MSEC

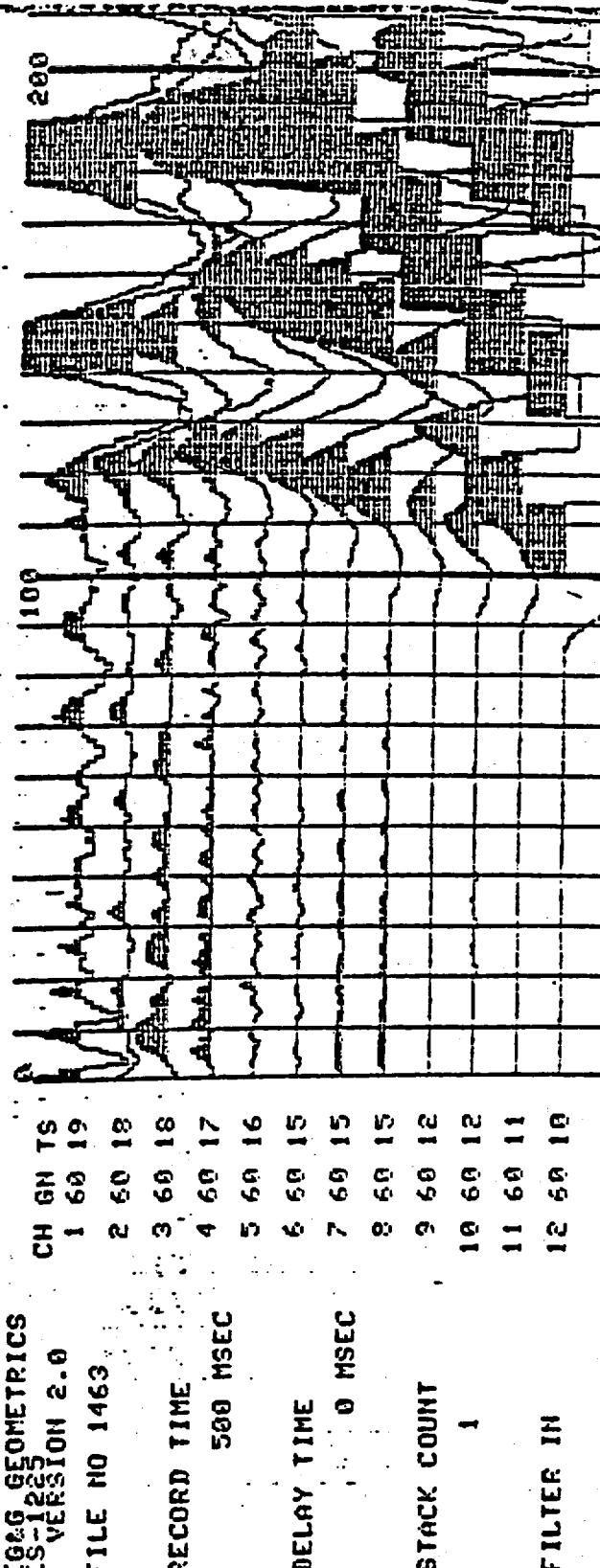
DELAY TIME

0 MSEC

STACK COUNT

1

FILTER IN



SP-22 LR

12:07 PM

12/27/87

DORNEY

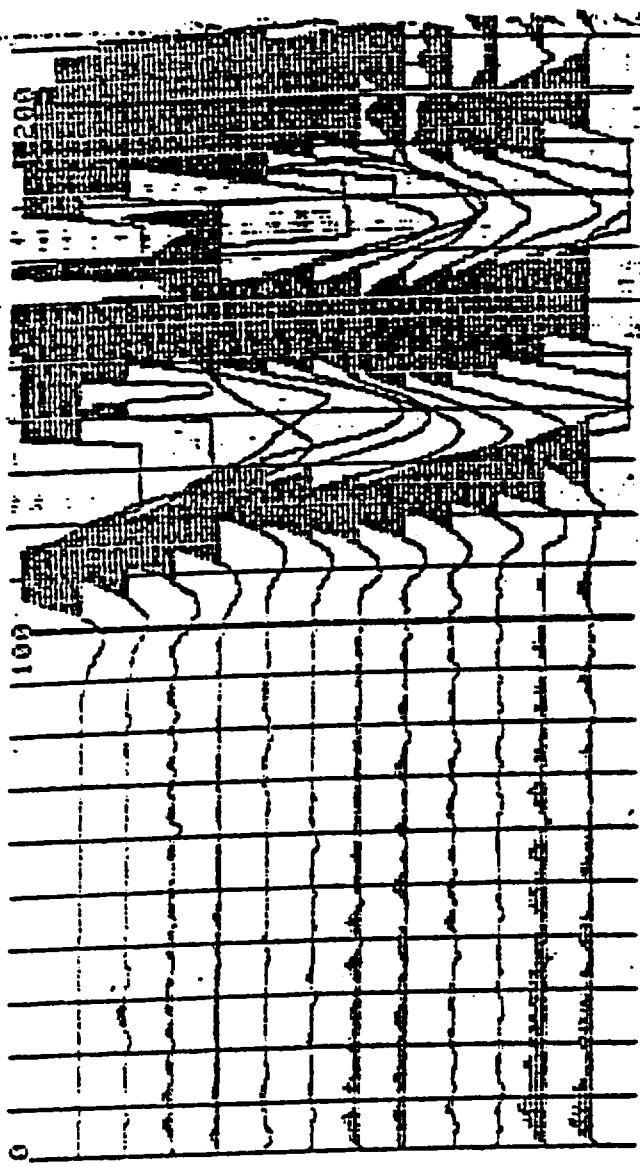
LANDFILL

Outside

AR301041

EGG GEOMETRICS
 EST-25 VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

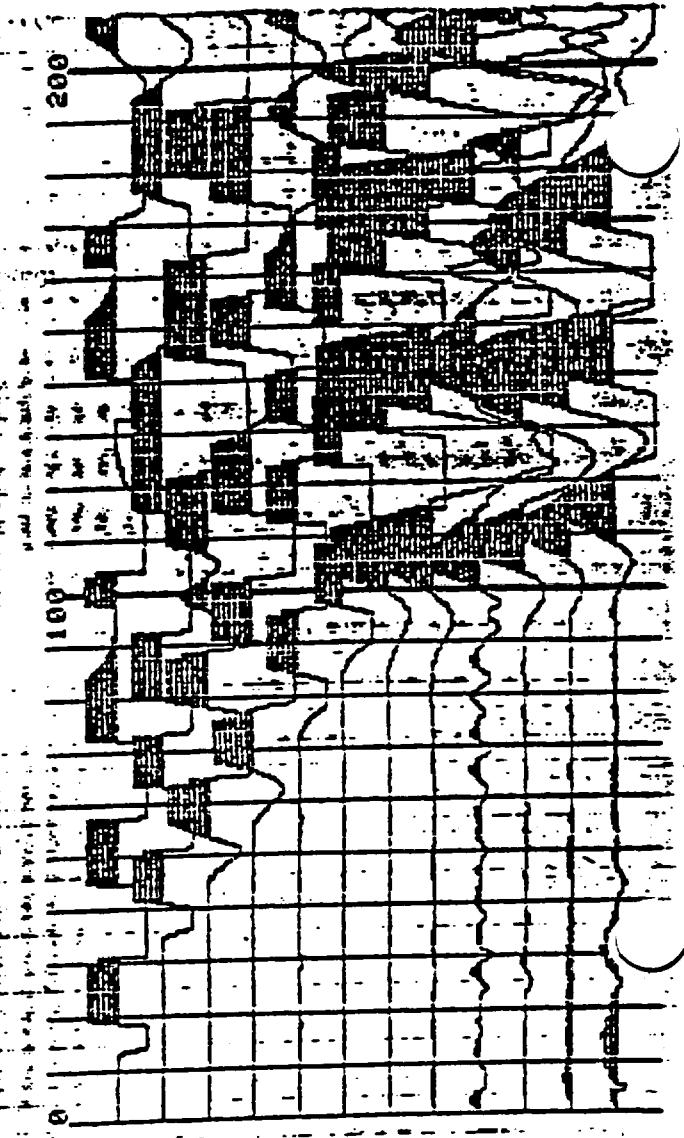
DORNEY
 LANDFILL
 Outside



EGG GEOMETRICS
 EST-25 VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

SP-23 F
 12:37 AM
 12/20/82
 DORNEY
 LANDFILL
 Outside

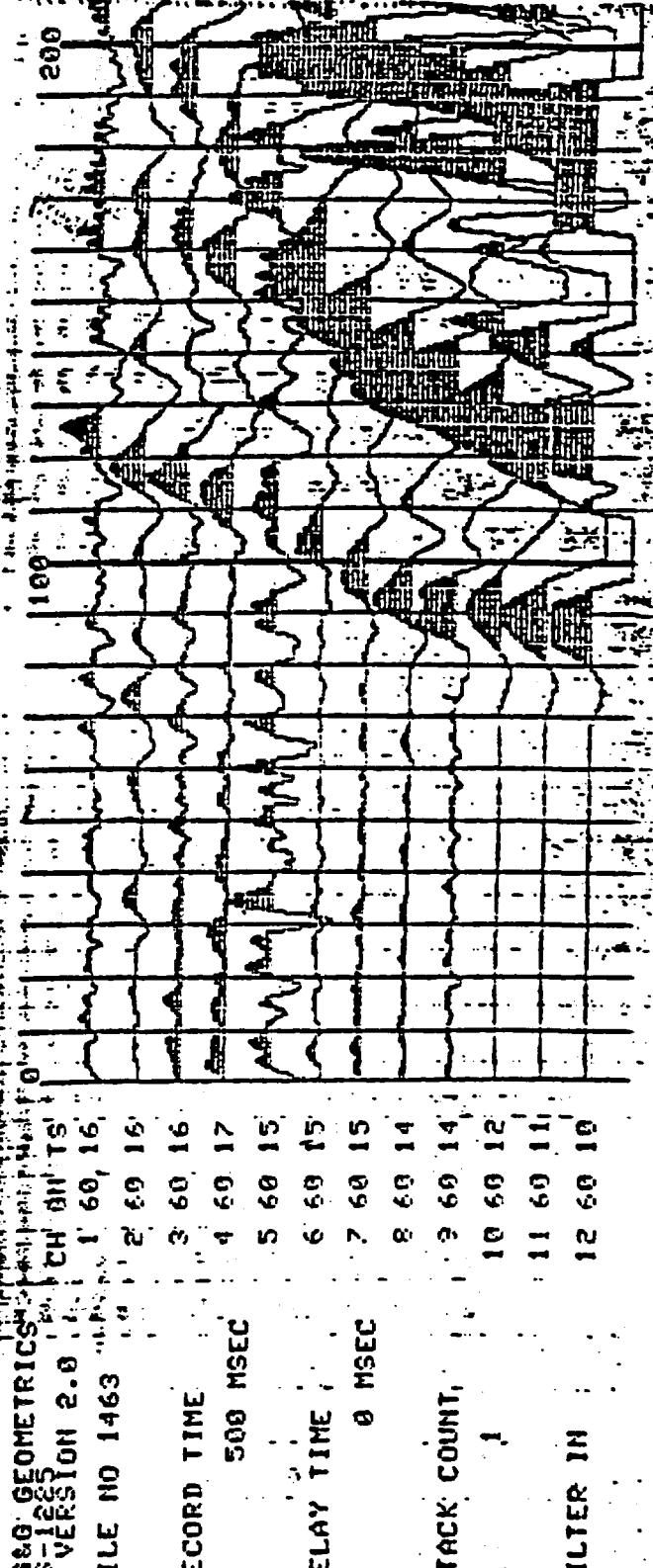
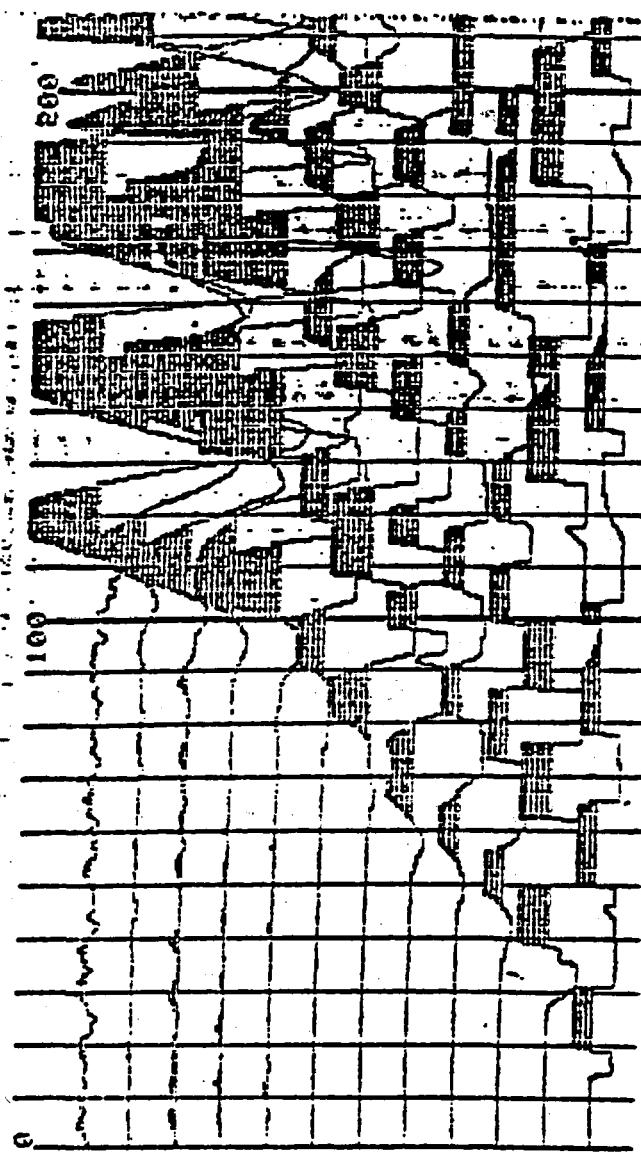
AR301042



EGG GEOMETRICS
 EST-1225
 VERSION 2.0
 FILE NO 1463
 RECORD TIME
 500 MSEC
 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 FILTER IN

SP-120
 12/20/87
 12:42 PM

ROCKNEY
 LID
 DUST

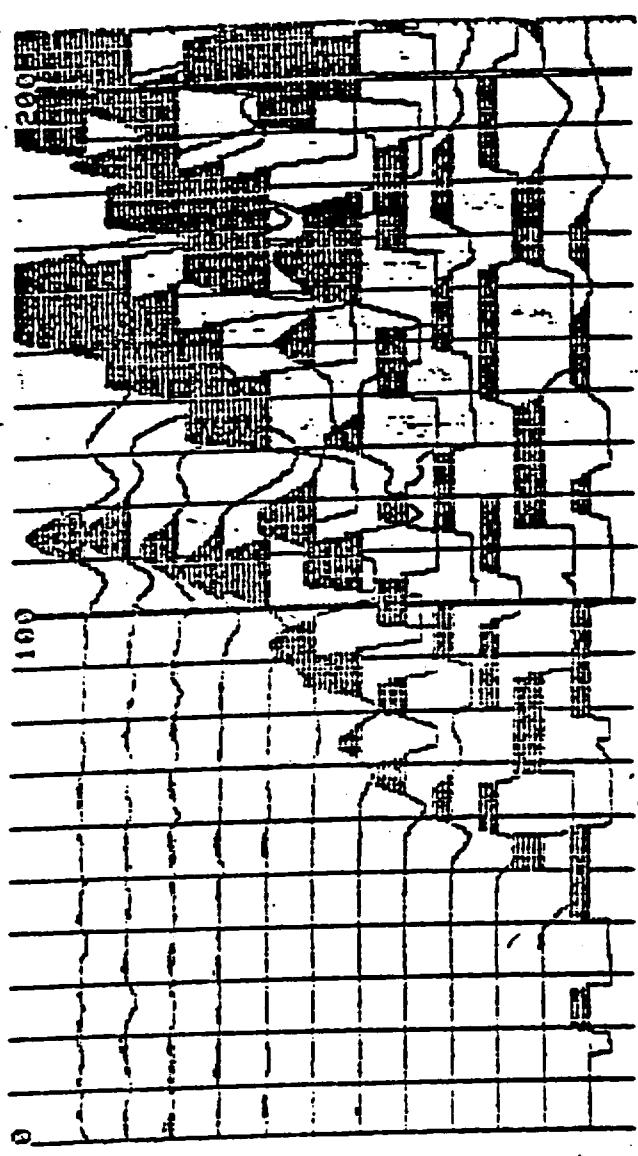


EGG GEOMETRICS
 EST-1225
 VERSION 2.0
 FILE NO 1463
 RECORD TIME
 500 MSEC
 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 FILTER IN

SP-120
 12/20/87
 12:42 PM

DUST
 DUST

AR301043



EG&G GEOMETRICS
 ES-VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

SP-24R

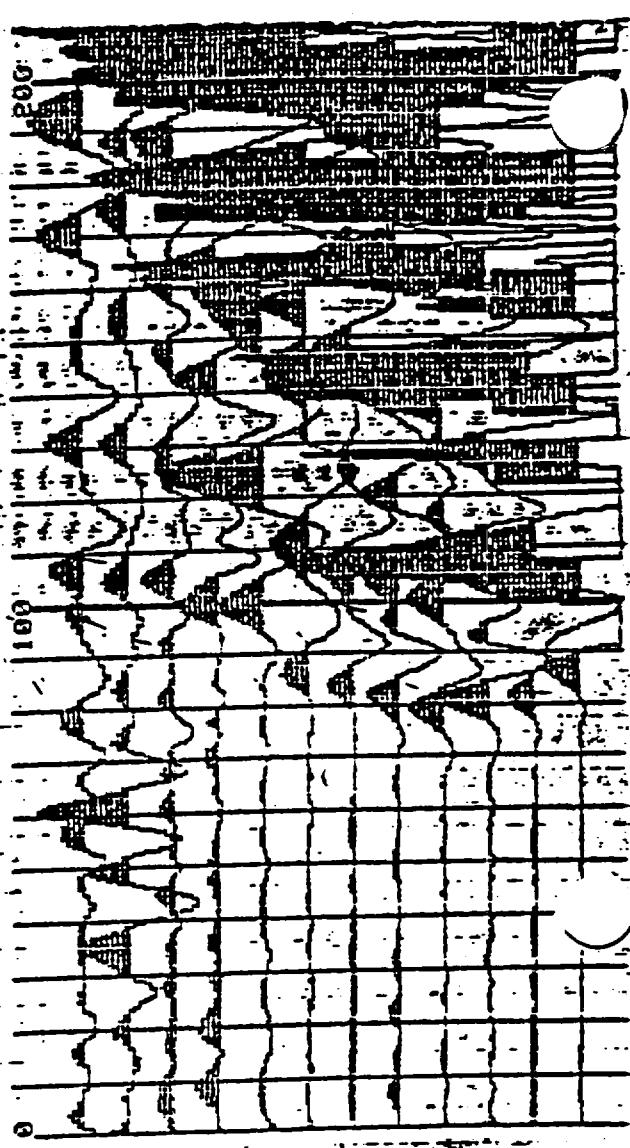
11:00 AM

12/27/83

DURNEY

LNDFT

Culvert



EG&G GEOMETRICS
 ES-VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

SP-24L

11:02 PM

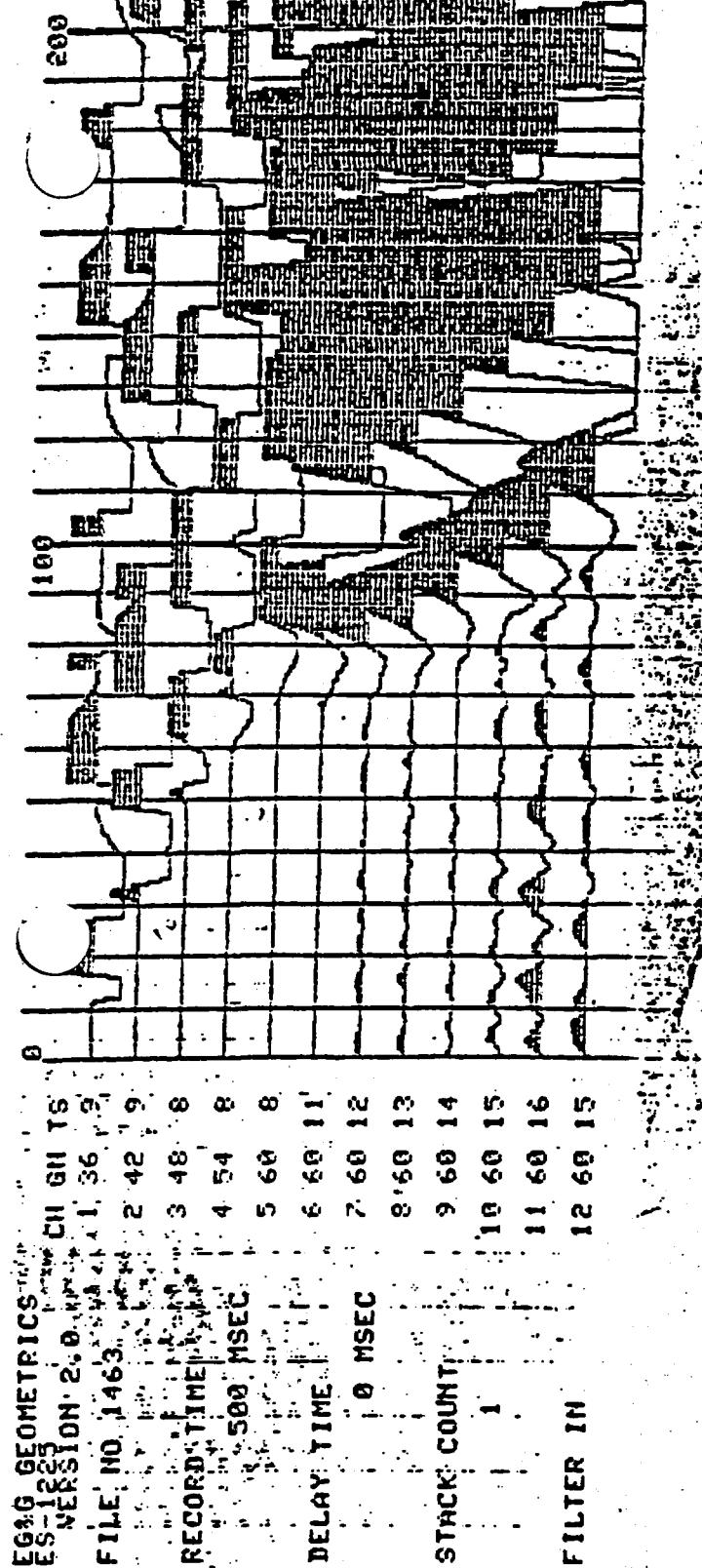
12/27/83

DURNEY

LNDFT

9:15P

AR307044



SP-29 F

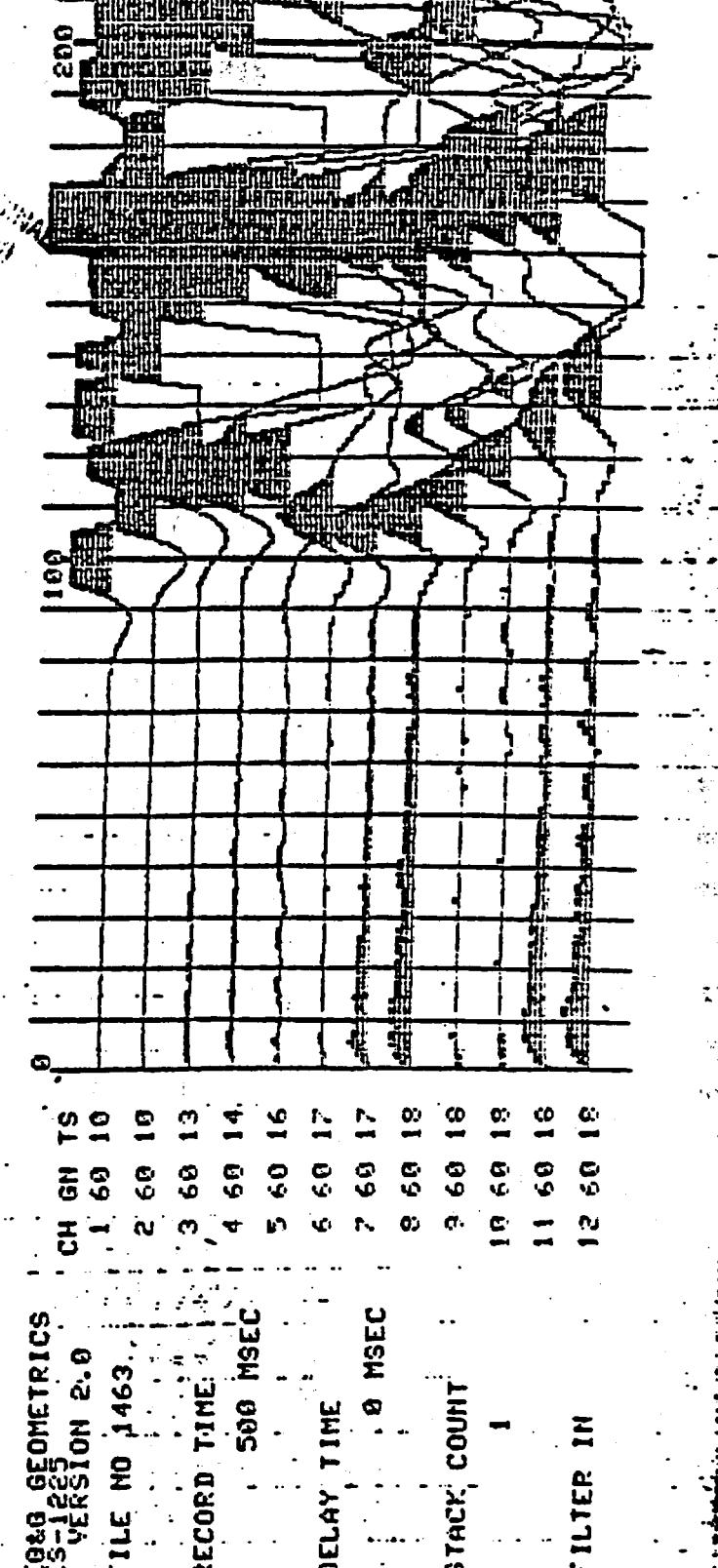
12:55 PM

1/29/82

DORNEY

LANDFILL

Outside



SP-29 LF

12:55 PM

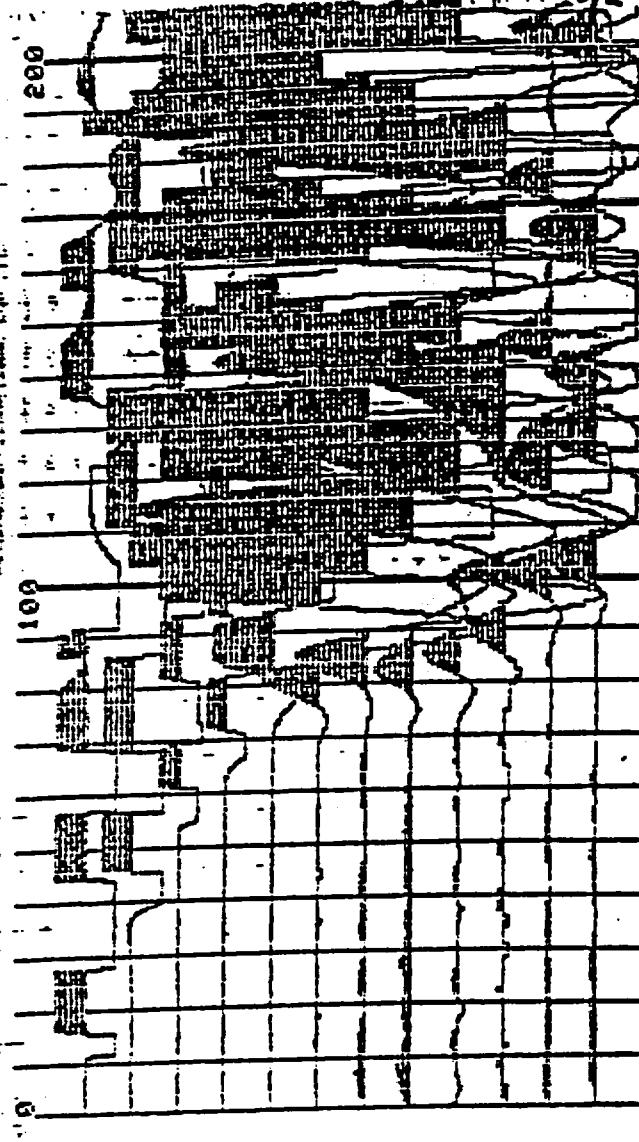
1/29/82

DORNEY

LANDFILL

Outside

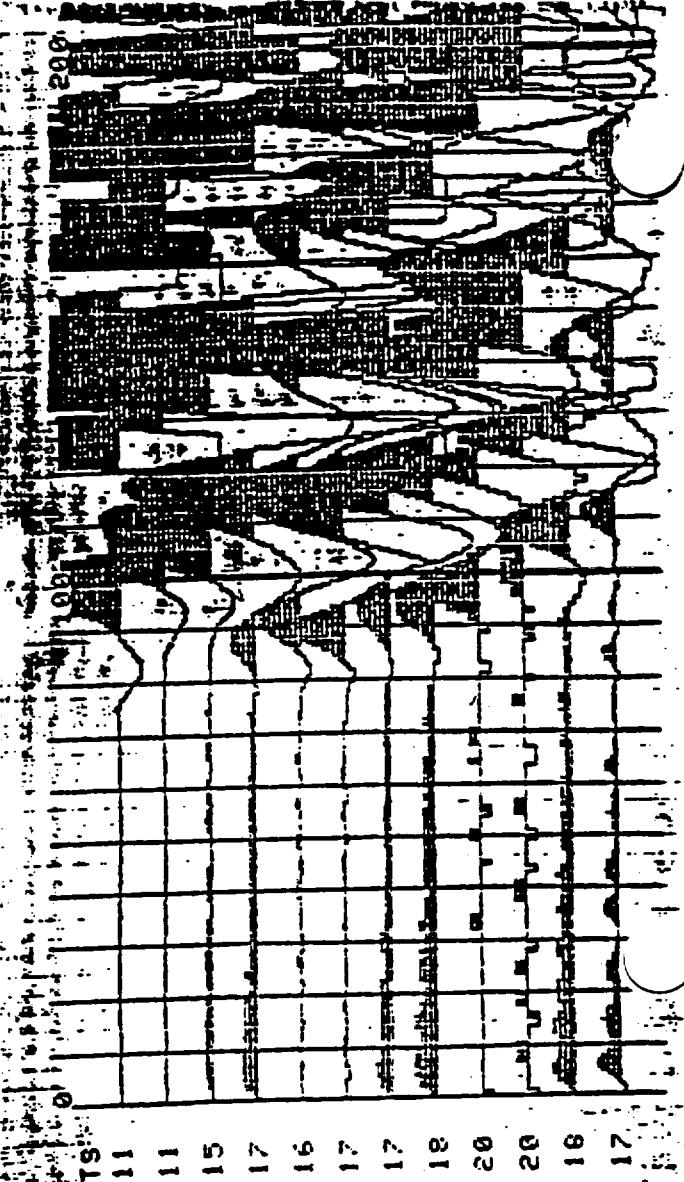
AR301045



EGG GEOMETRICS
 ES-125
 VERSION 2.0
 FILE NO 1463
 RECORD TIME
 500 MSEC
 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 FILTER IN

SP-15-
 121PM

LANDFILL
 Outside



EGG GEOMETRICS
 ES-125
 VERSION 2.0
 FILE NO 1463
 RECORD TIME
 500 MSEC
 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 FILTER IN

SP-15-
 19PM

DORRY
 LANDFILL
 Outside

AR301046

EG&G GEOMETRICS
 ES-1235
 VERSION 2.0
 FILE NO 1463
 RECORD TIME
 500 MSEC
 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 FILTER IN
 12 69 9

11/25/77
 1:26 PM

DOLNEY
 LANDFILL
 Outside

EG&G GEOMETRICS
 ES-1235
 VERSION 2.0
 FILE NO 1463
 RECORD TIME
 500 MSEC
 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 FILTER IN
 12 36 8

11/25/77
 1:23 PM
 12:50 PM
 AR301047

DOLNEY
 LANDFILL
 Outside

EEEG GEOMETRICS
EST-VERSION 2.0

FILE NO. 1463

RECORD TIME 1:40 PM

500 MSEC

DELAY TIME 0 MSEC

STACK COUNT 1

10 60 18

11 60 18

12 60 17

FILTER IN

DOLNEY

LAUREL

Outsite

EEEG GEOMETRICS
EST-VERSION 2.0

FILE NO. 1463

RECORD TIME 500 MSEC

DELAY TIME 0 MSEC

STACK COUNT 1

6 60 14

7 60 15

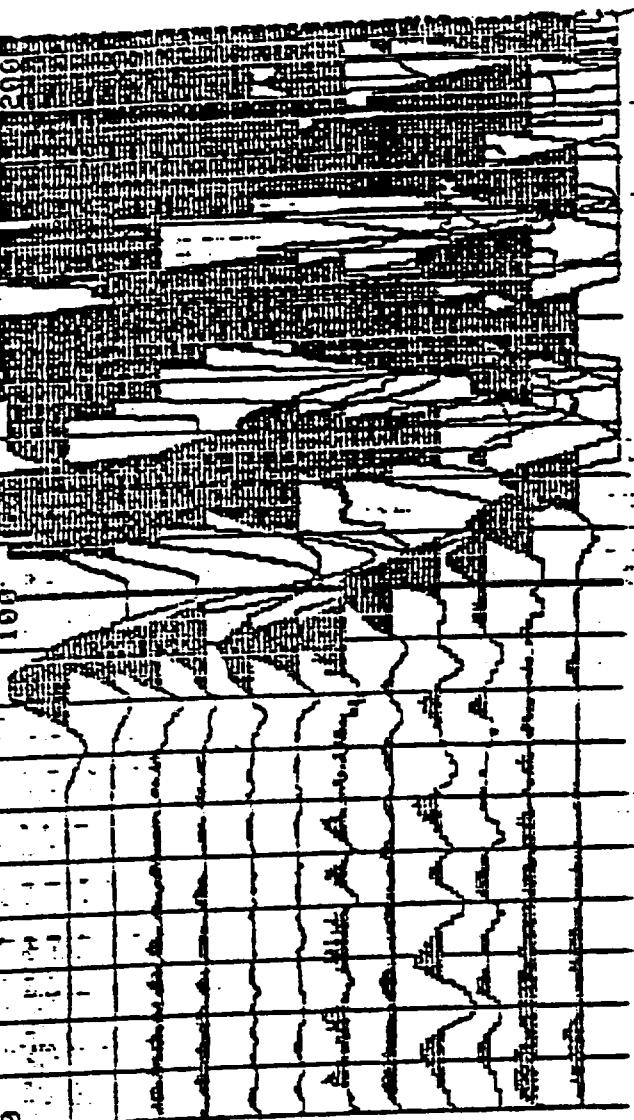
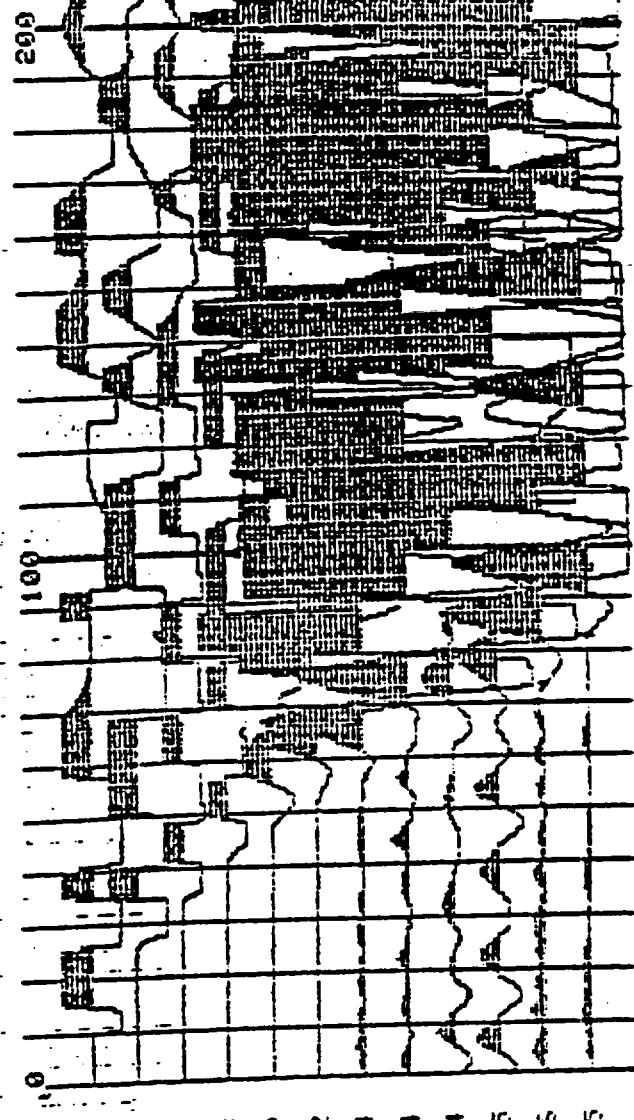
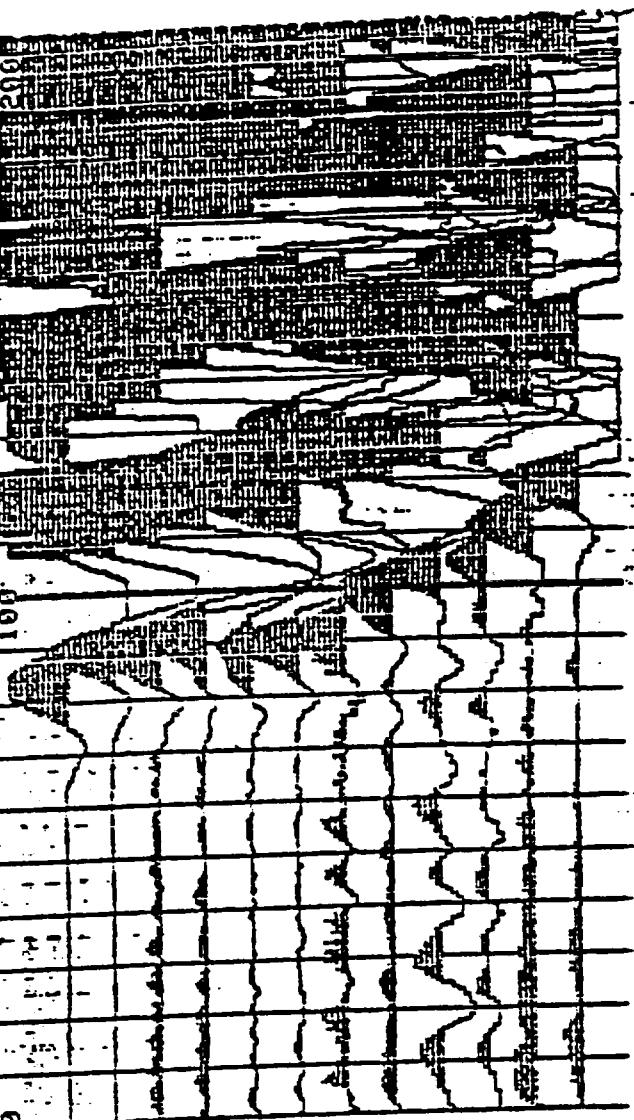
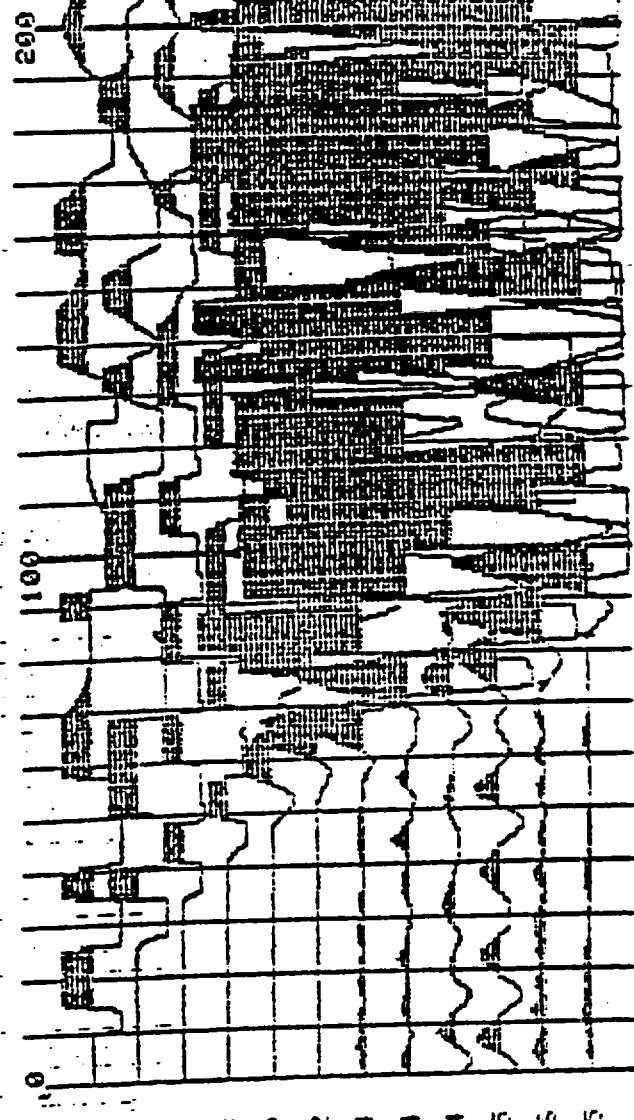
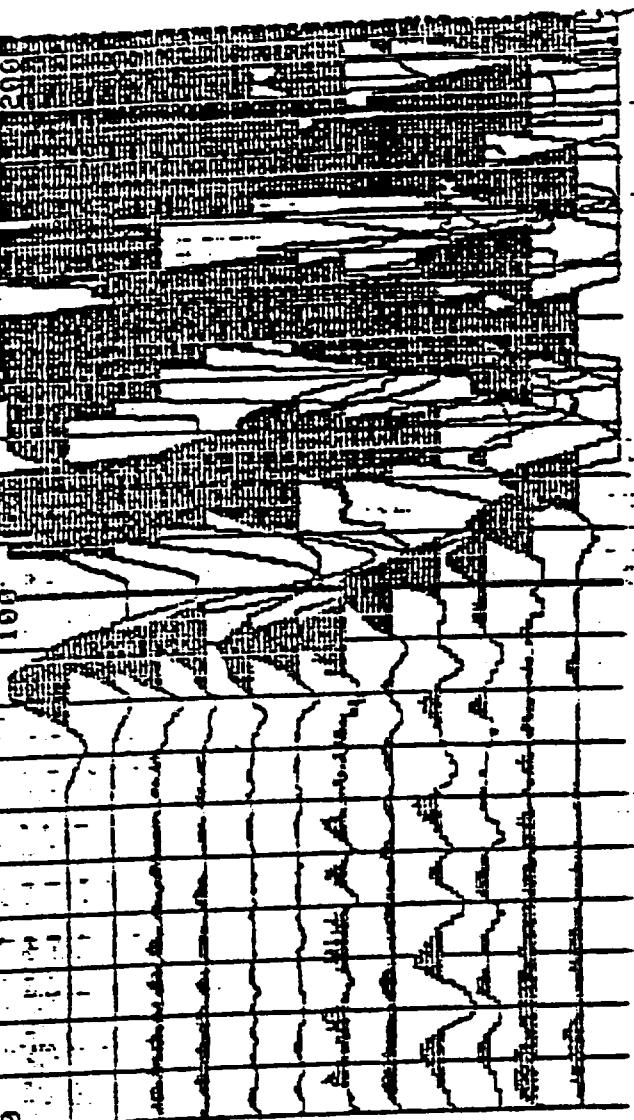
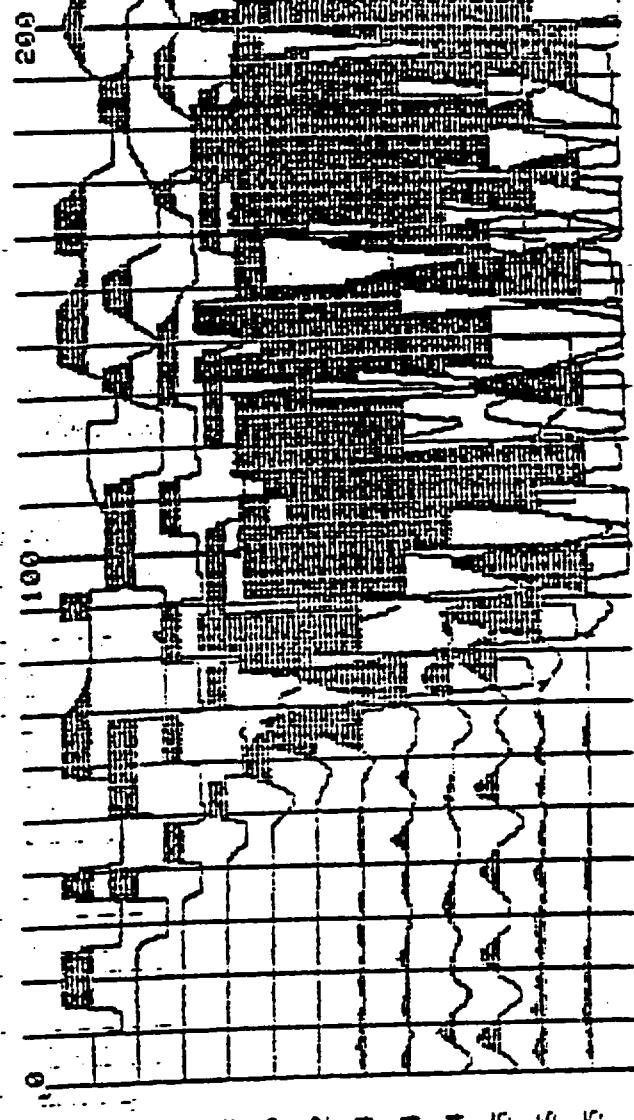
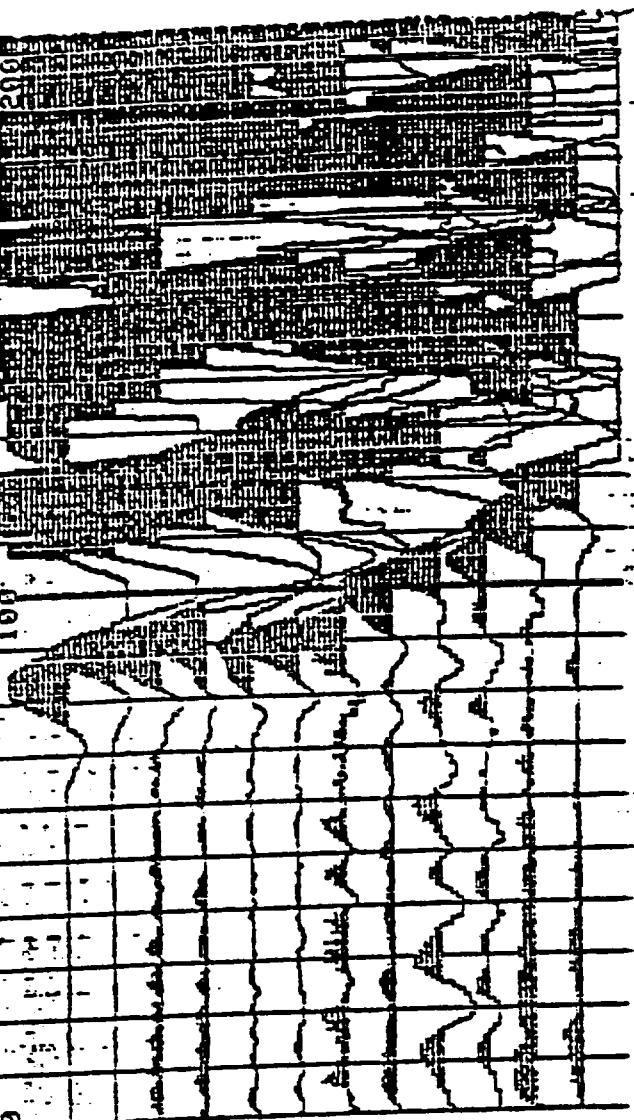
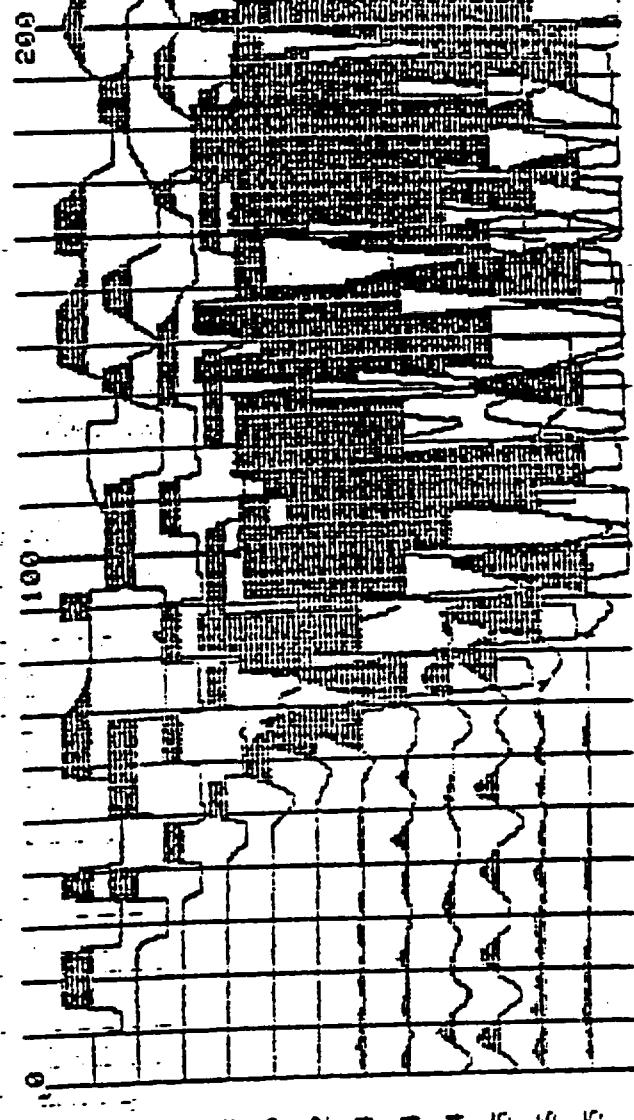
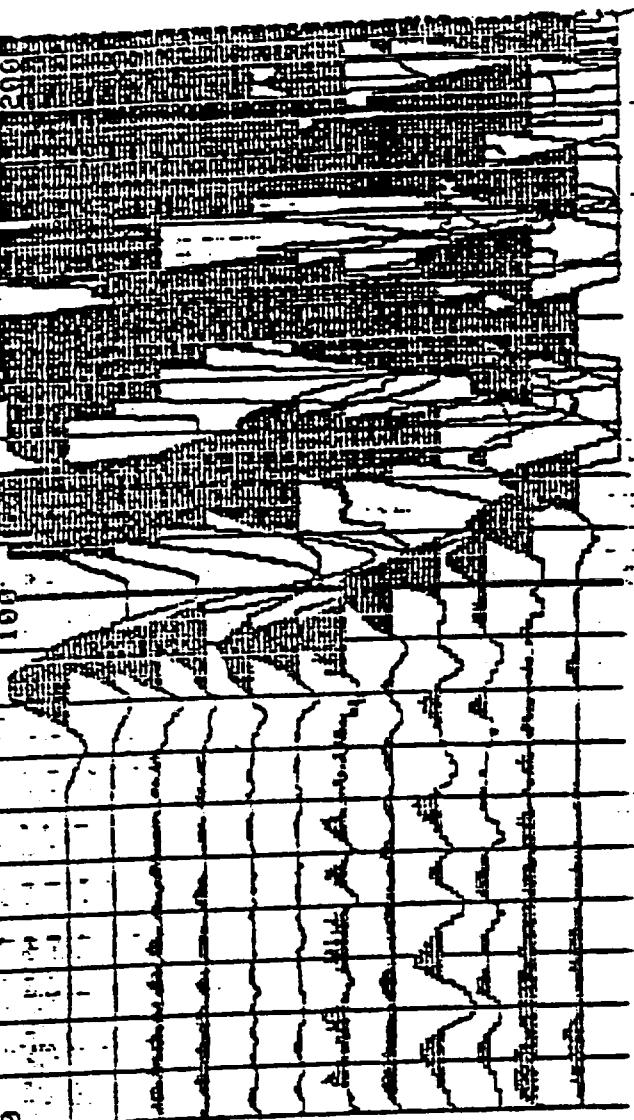
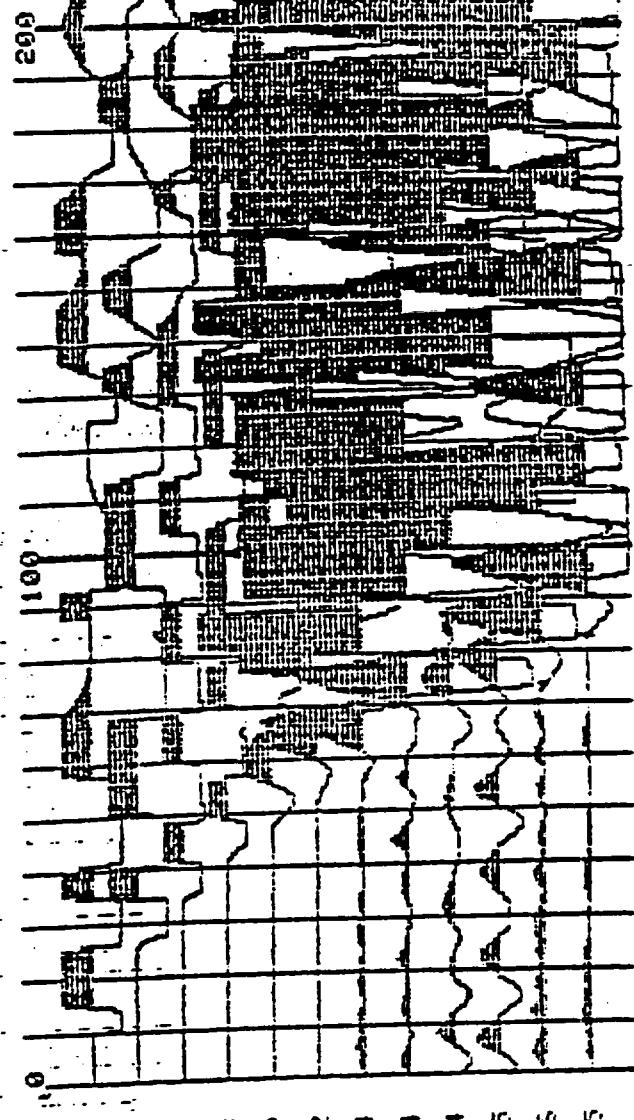
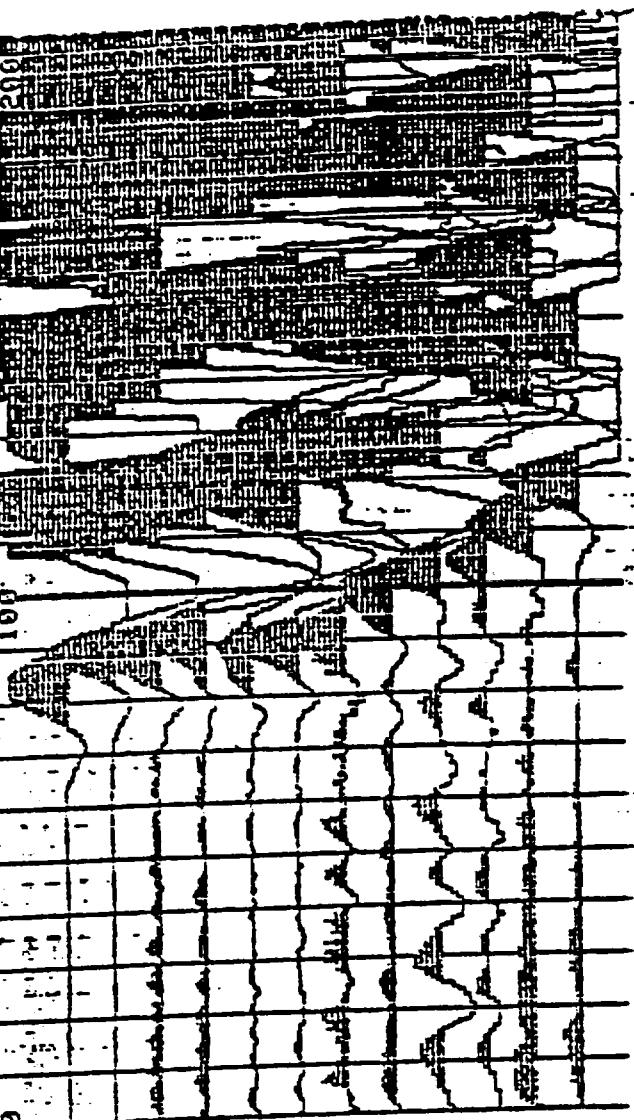
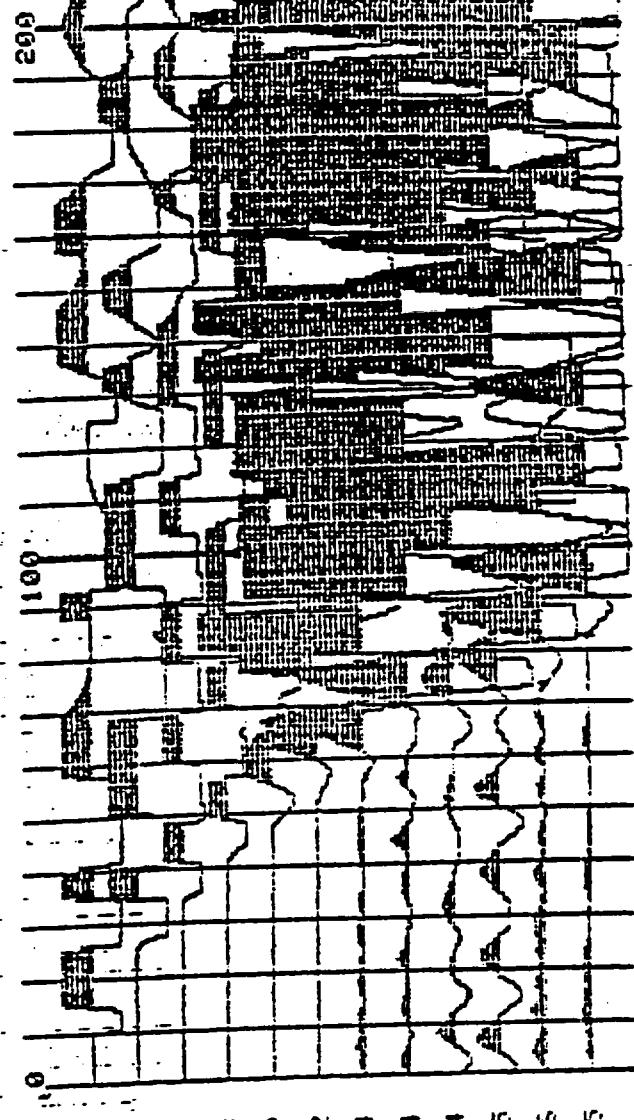
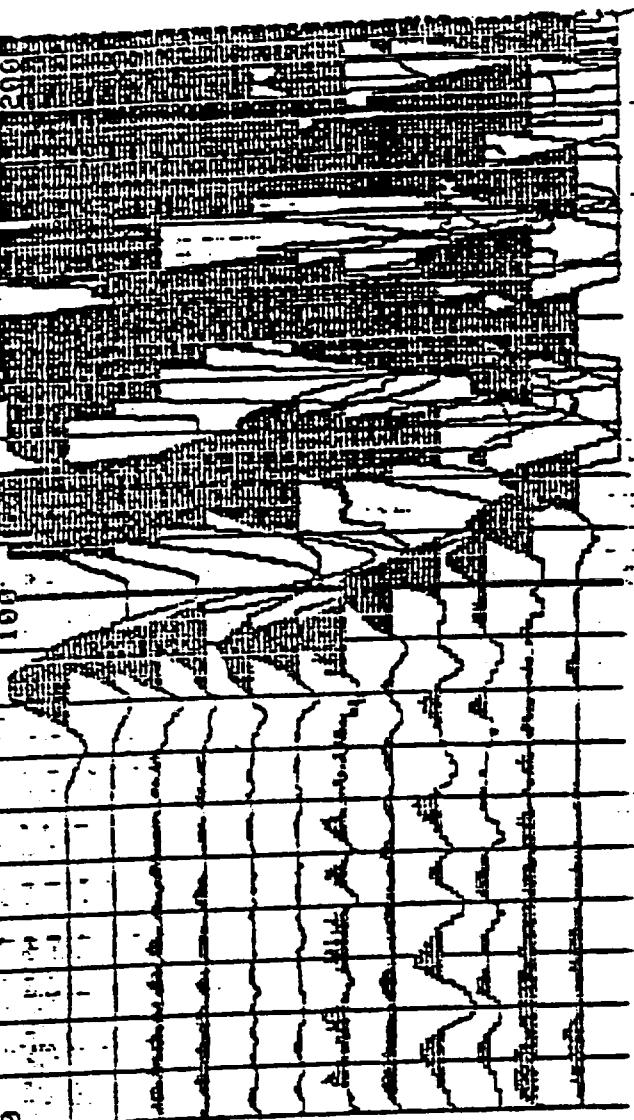
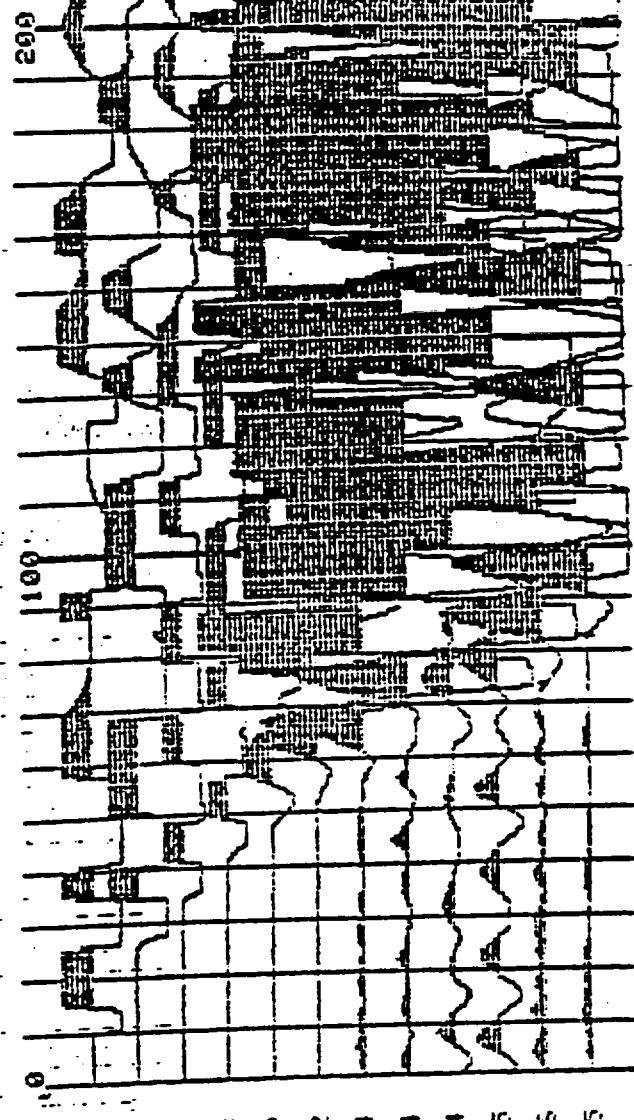
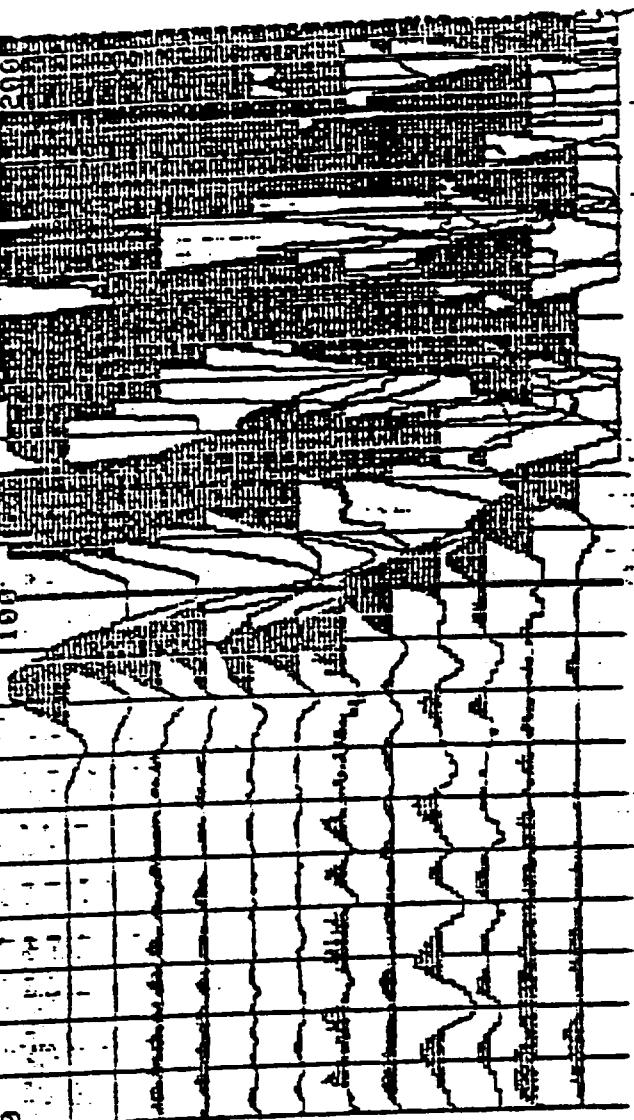
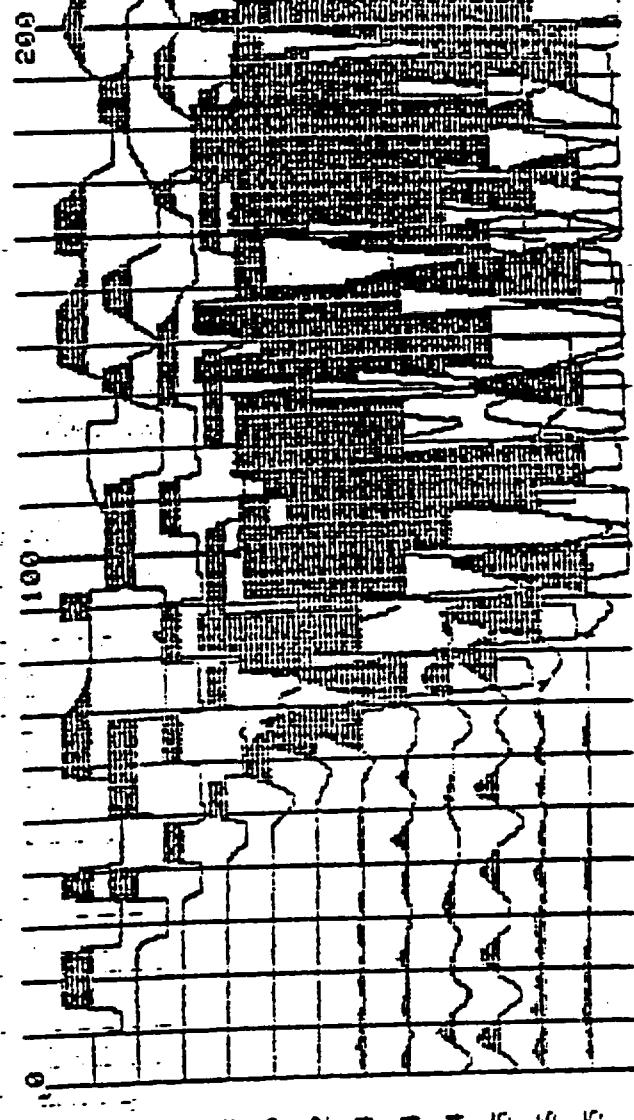
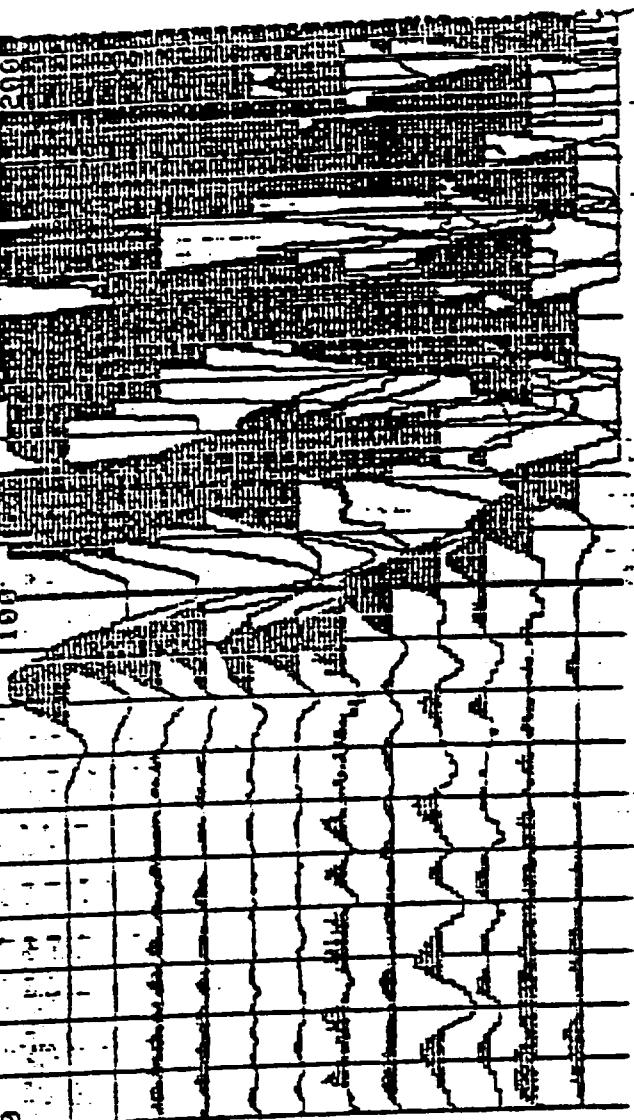
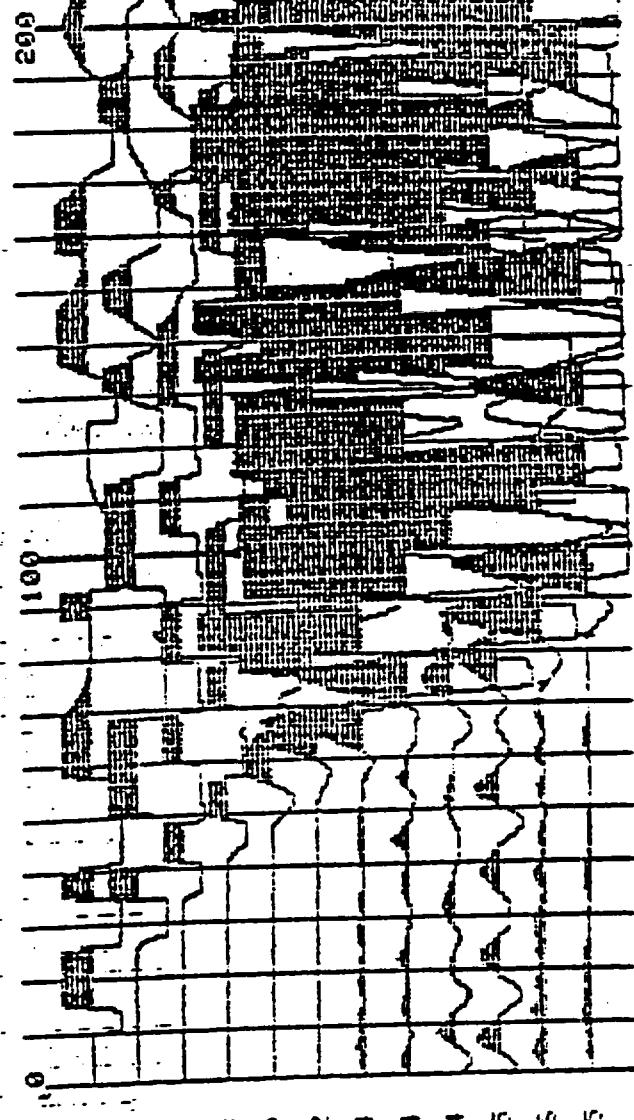
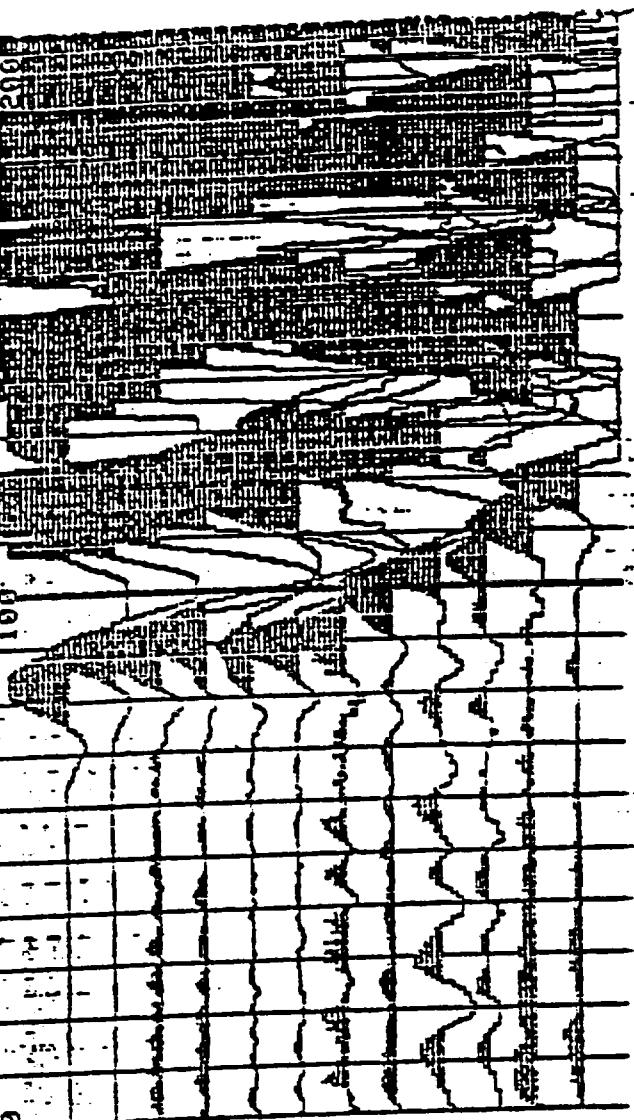
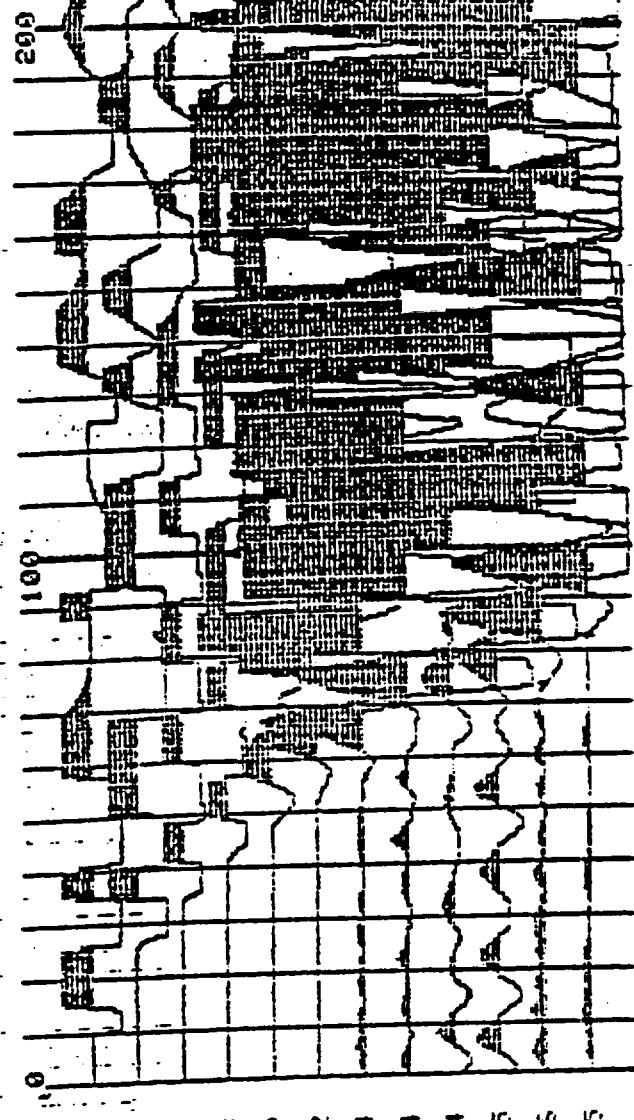
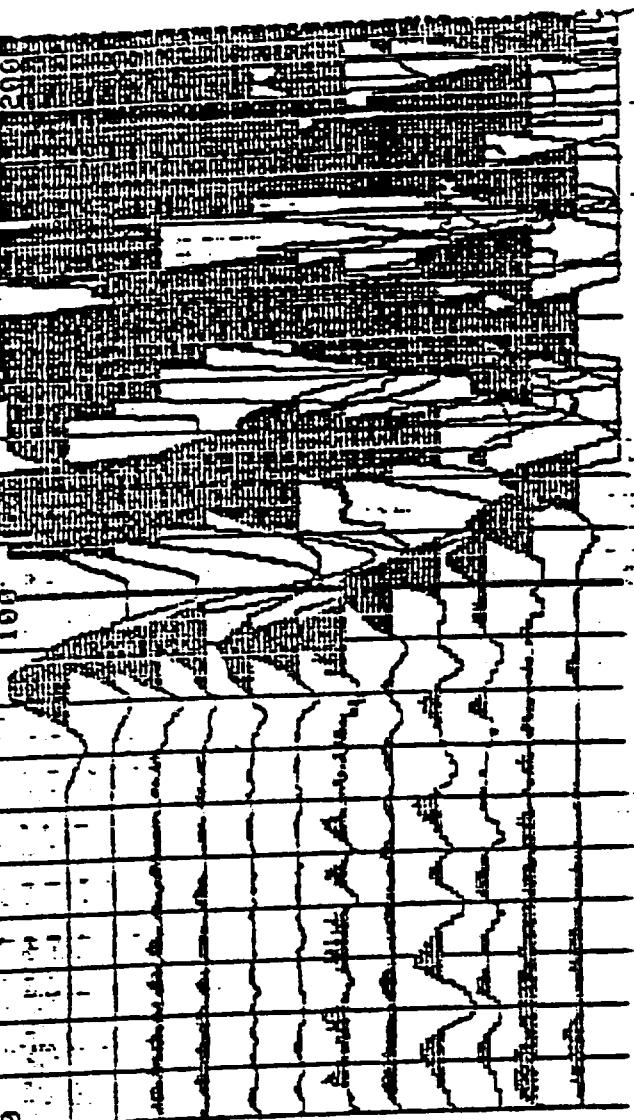
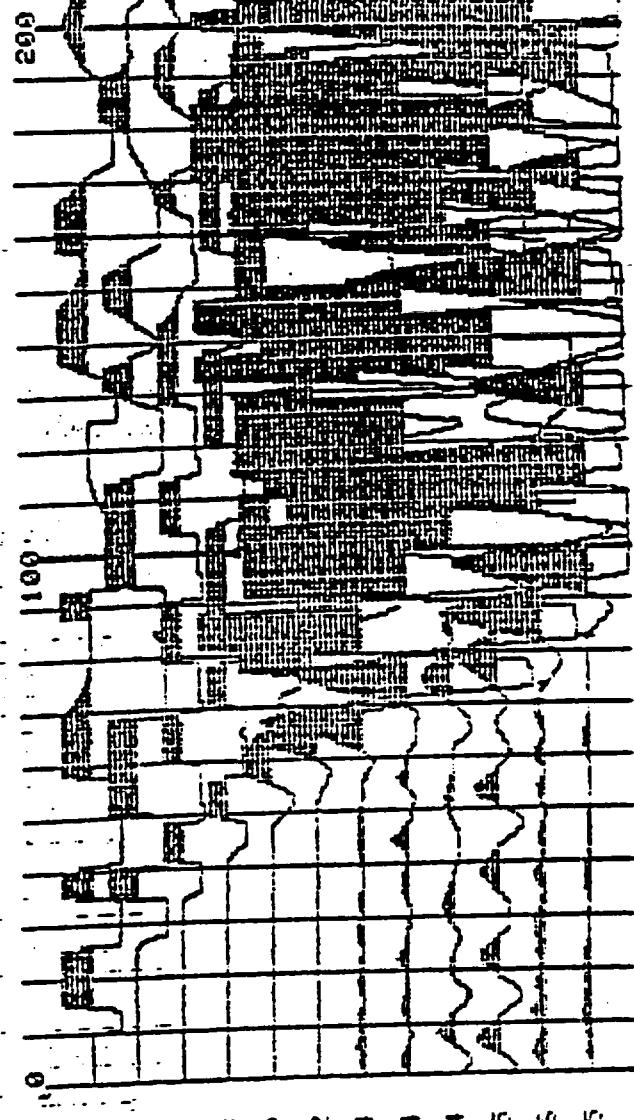
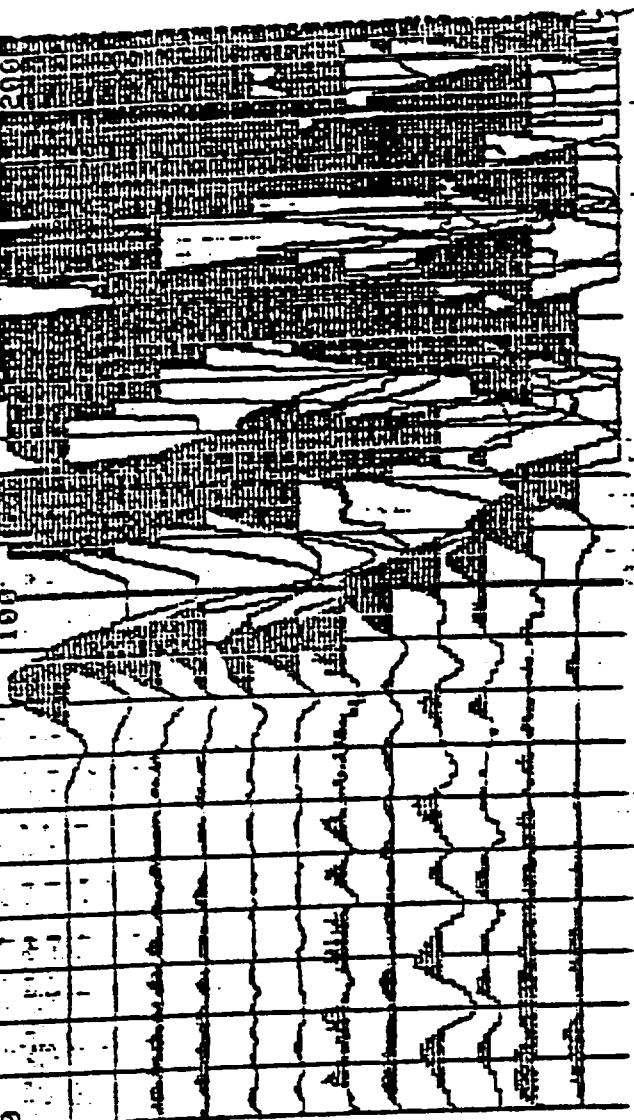
8 60 15

10 60 16

11 60 16

12 60 15

FILTER IN



EGG GEOMETRICS

VERSION 2.0 TS
FILE NO 1463

RECORD TIME 0 MSEC

500 MSEC

DELAY TIME 0 MSEC

10 MSEC

STACK COUNT 1

9 54 8

FILTER IN 10 48 9

11 42 9

12 36 8

SP-26R

DORMANT
LANDFILL

1:40 PM

12/29/67

Outside

EGG GEOMETRICS

VERSION 2.0 TS
FILE NO 1463

RECORD TIME 0 MSEC

500 MSEC

DELAY TIME 0 MSEC

10 MSEC

STACK COUNT 9 60 13

10 60 14

11 60 13

12 60 10

SP-26 LR

1:37 PM

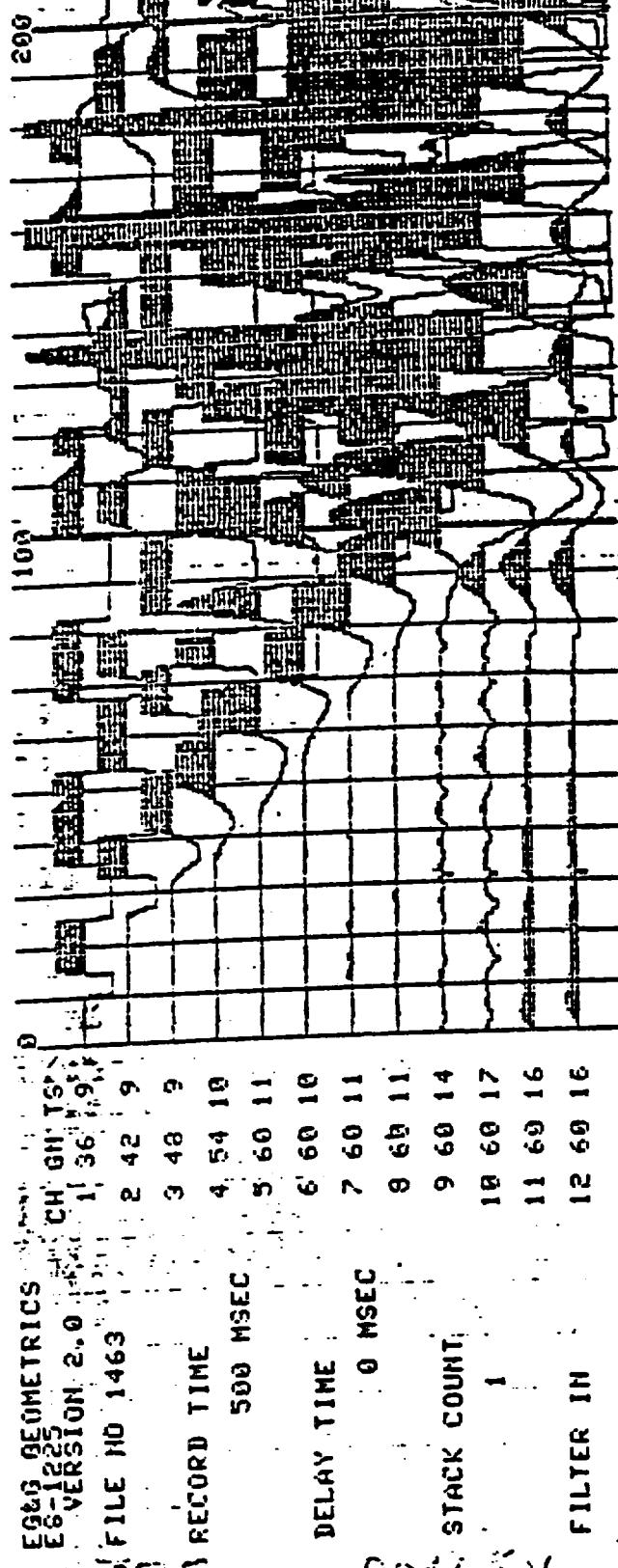
12/29/67

Outside

Landfill

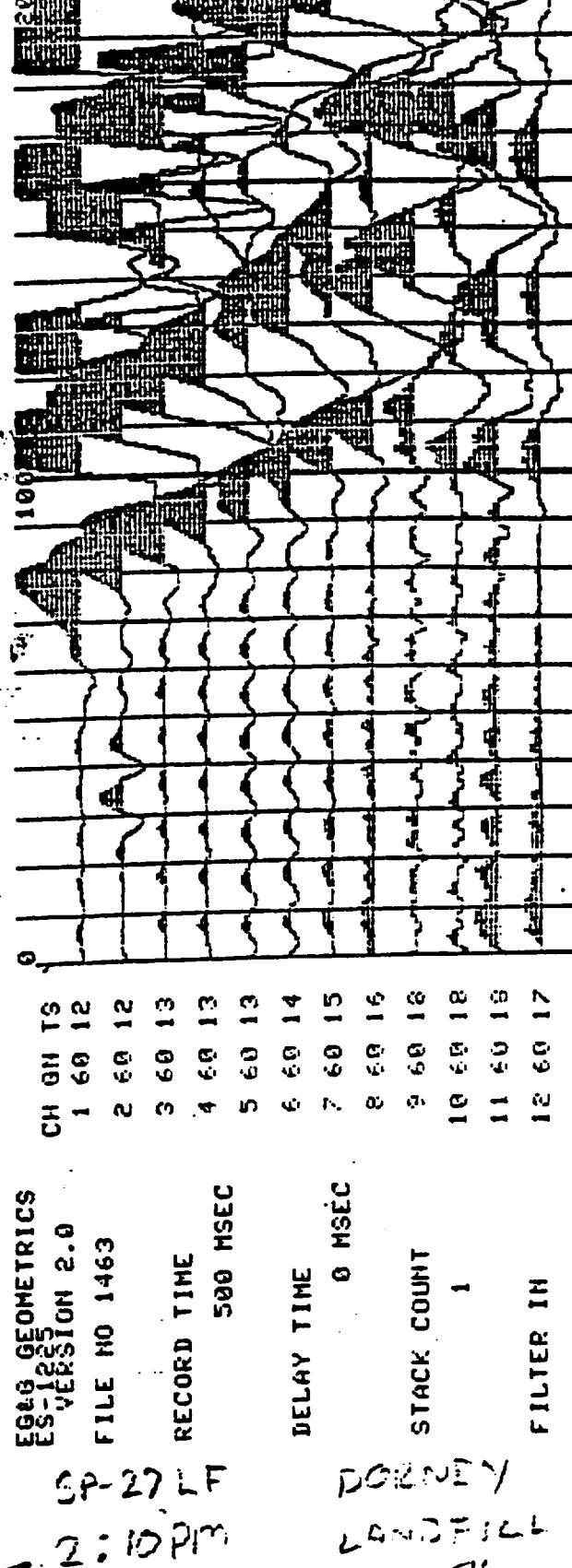
Outside

AR301049



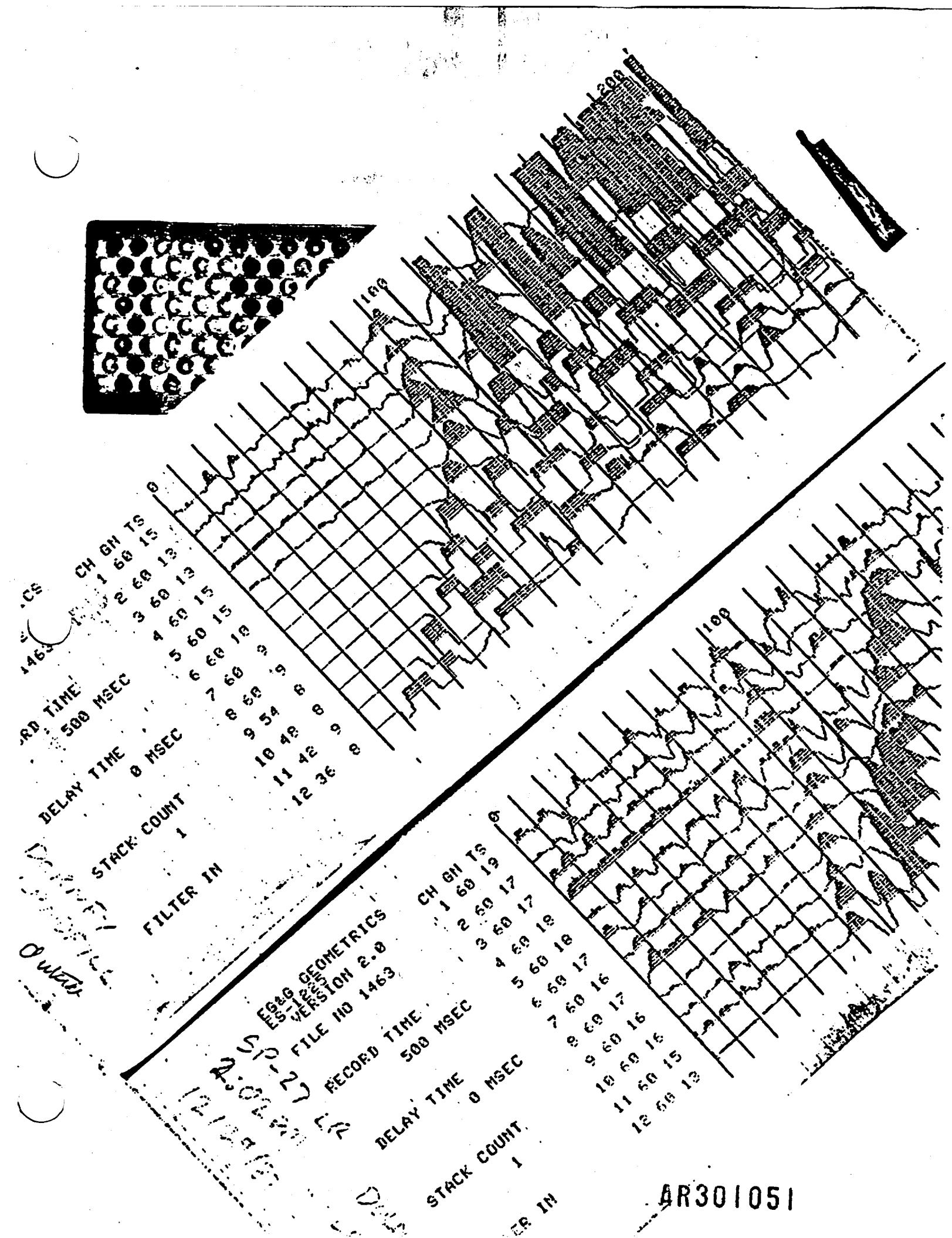
SP-27
2:07 PM
12/27/87

Outside



12/27/87

AR301050

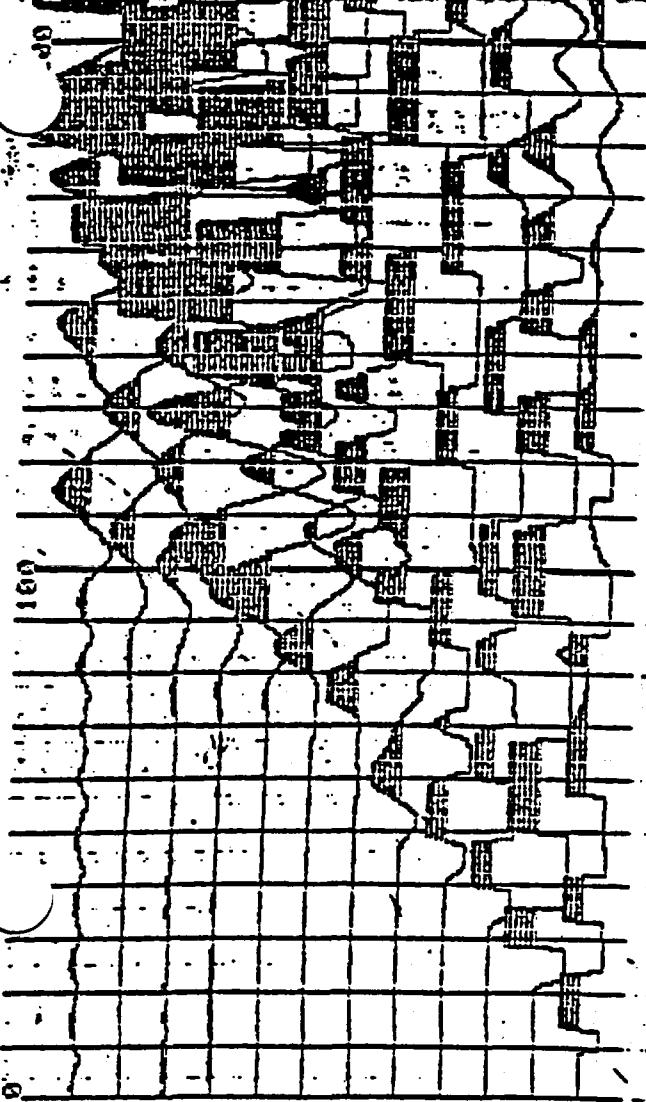


Field Data

Inside Landfill

AR301052

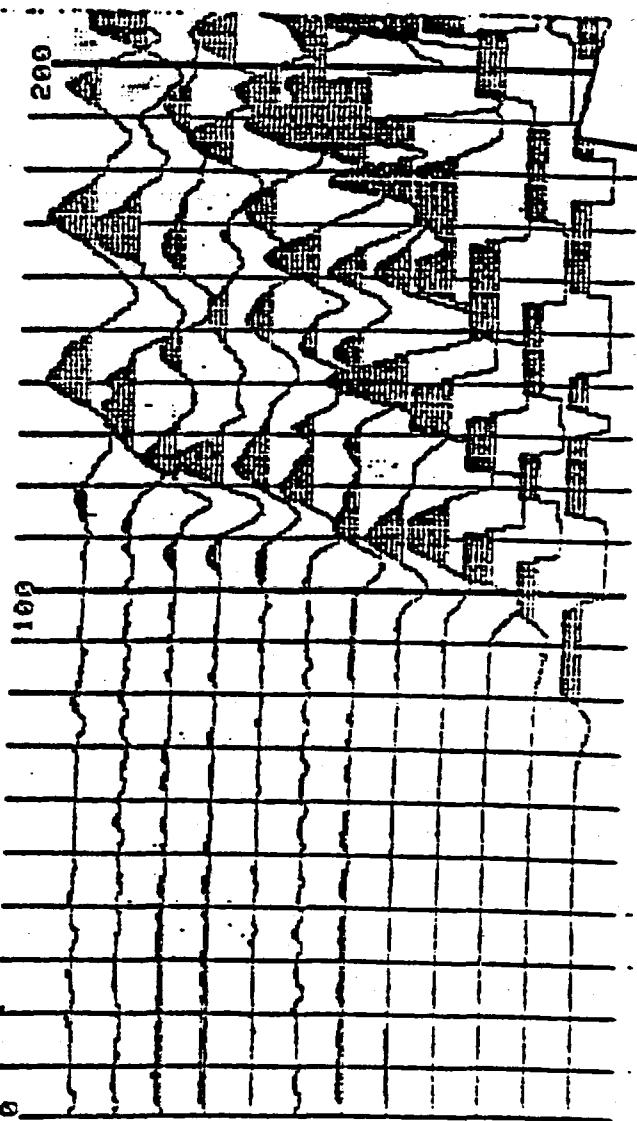
EGG GEOMETRICS
EST-1225 VERSION 2.0
FILE NO. 1463
RECORD TIME
1560 MSEC
DELAY TIME
0 MSEC
STACK COUNT
1
FILTER IN



Griffith Egg 12.1.4-27

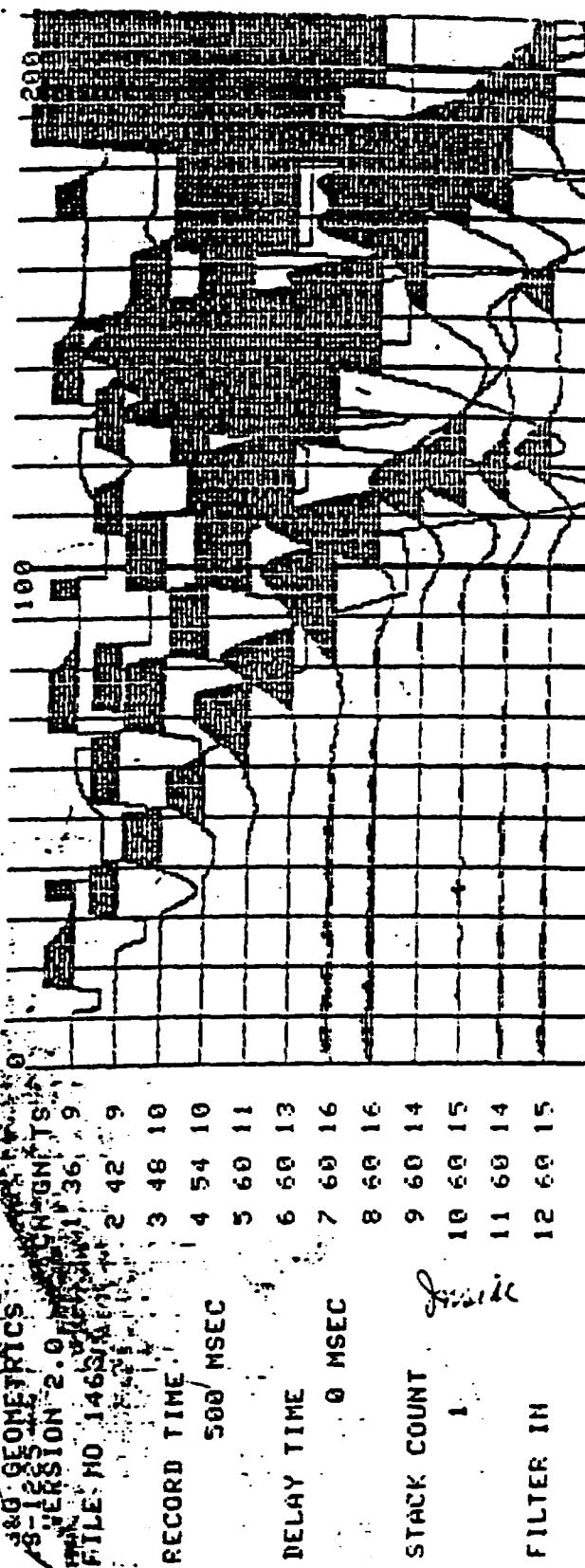
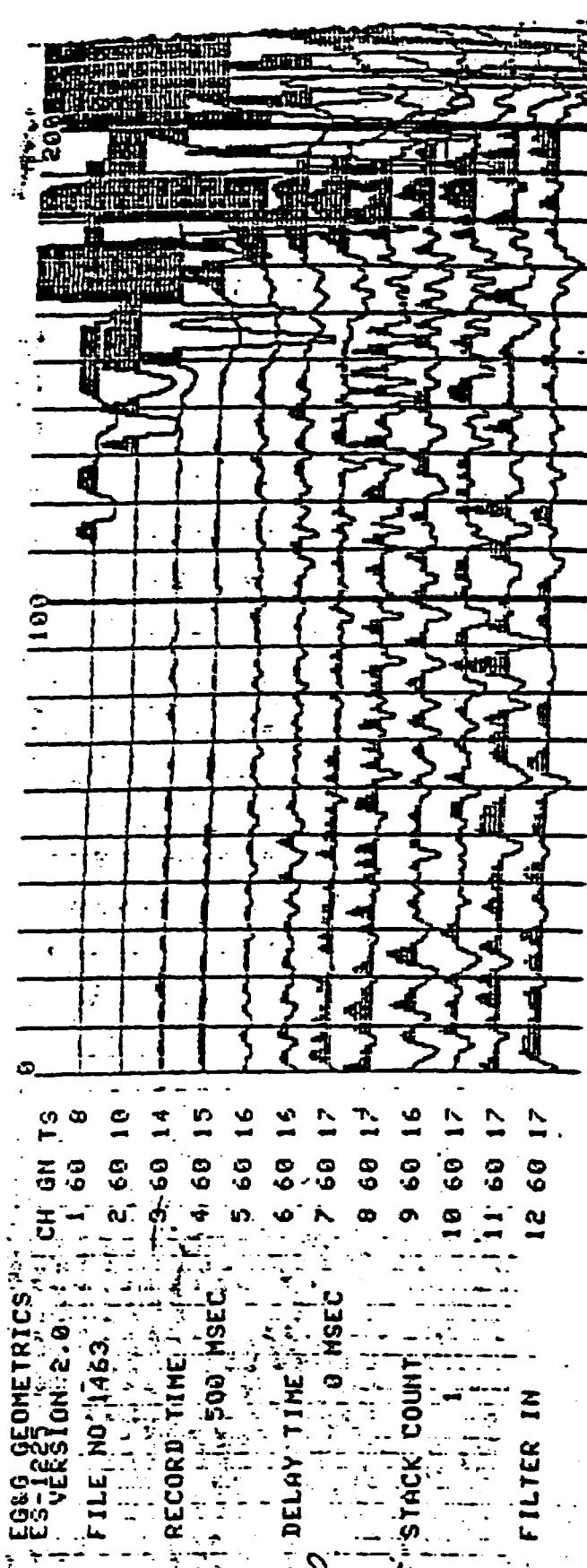
desire

EGG GEOMETRICS
EST-1225 VERSION 2.0
FILE NO. 1463
RECORD TIME
1560 MSEC
DELAY TIME
0 MSEC
STACK COUNT
1
FILTER IN



Griffith Egg 1.4.27
SPILL desire

AR301053



AR301054

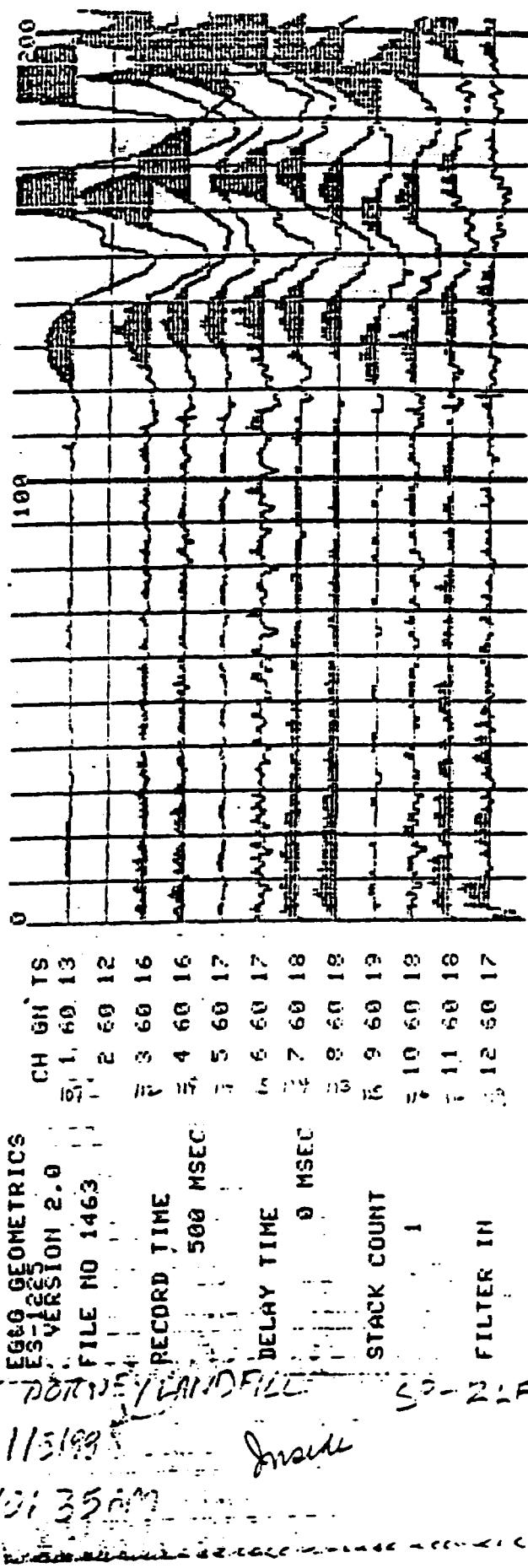
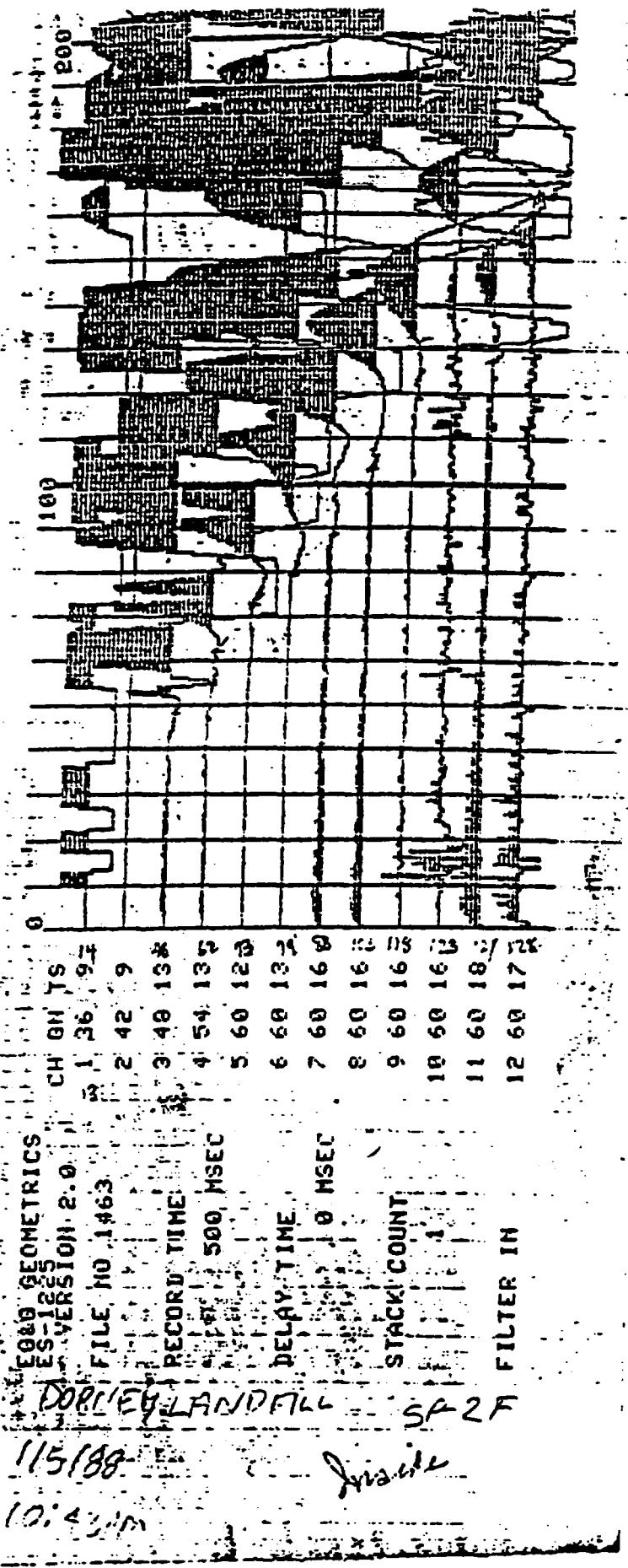
EGG GEOMETRICS
 ES-1225
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

SP-2 LR
 10:47 AM 11/5/98

EGG GEOMETRICS
 ES-1225
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER IN

SP-2 LR
 10:51 AM 11/5/98

AR304055



ÅR301056

EG&G GEOMETRICS

ES-1255

VERSION 2.0

FILE NO. 1463

RECORD TIME

500 MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

FILTER IN

8

CH GN TS

1 60 17

2 60 17

3 60 16

4 60 13

5 60 12

6 60 10

7 60 10

8 60 9

9 54 8

10 48 8

11 42 8

12 36 8

13 30 8

14 24 8

15 18 8

16 12 8

17 6 8

18 0 8

19 0 8

20 0 8

21 0 8

22 0 8

23 0 8

24 0 8

25 0 8

26 0 8

27 0 8

28 0 8

29 0 8

30 0 8

31 0 8

32 0 8

33 0 8

34 0 8

35 0 8

36 0 8

37 0 8

38 0 8

DORNEY LHM-FILL SP-3R

11/5/88

11:17 AM

Single

EG&G GEOMETRICS

ES-1255

VERSION 2.0

FILE NO. 1463

RECORD TIME

500 MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

CH GN TS

1 60 18

2 60 19

3 60 19

4 60 19

5 60 19

6 60 17

7 60 17

8 60 17

9 60 16

10 60 16

11 60 16

12 60 15

13 60 15

14 60 15

15 60 15

16 60 15

17 60 15

18 60 15

19 60 15

20 60 15

21 60 15

22 60 15

23 60 15

24 60 15

25 60 15

26 60 15

27 60 15

28 60 15

29 60 15

30 60 15

31 60 15

32 60 15

33 60 15

34 60 15

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40 60 15

41 60 15

42 60 15

43 60 15

44 60 15

45 60 15

46 60 15

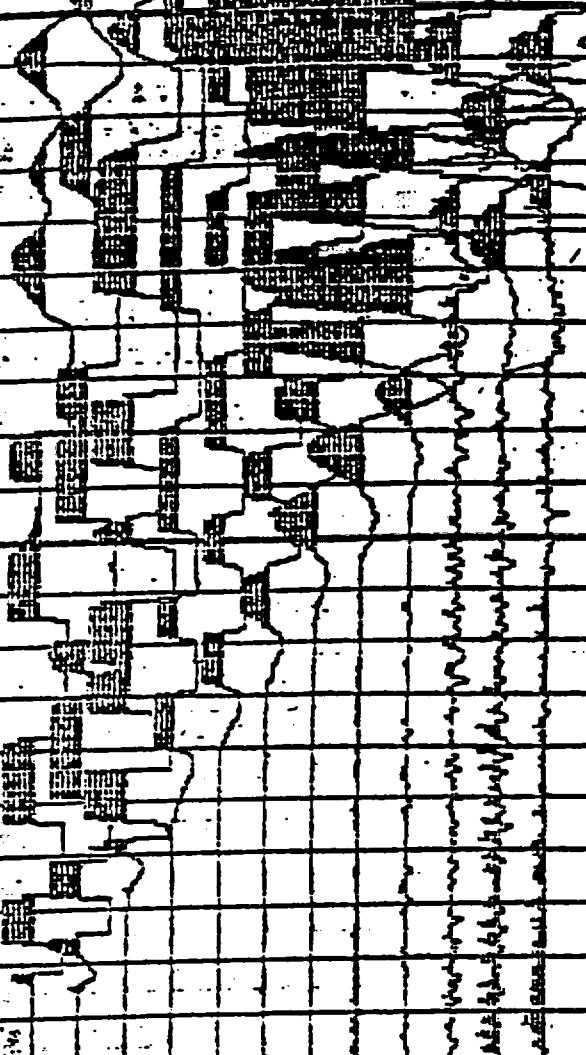
47 60 15

11:21 AM

Single

AR301057

EGG GEOMETRICS
ES-125 VERSION 2.0



FILE NO 1463

RECORD TIME	CH	GN	TS
500 MSEC	1	36	9
500 MSEC	2	42	9
500 MSEC	3	48	10
500 MSEC	4	54	9
500 MSEC	5	60	8
500 MSEC	6	66	9
500 MSEC	7	72	60
500 MSEC	8	78	60
500 MSEC	9	84	13
500 MSEC	10	90	15
500 MSEC	11	96	16
500 MSEC	12	102	17
500 MSEC	13	108	17

DELAY TIME 0 MSEC

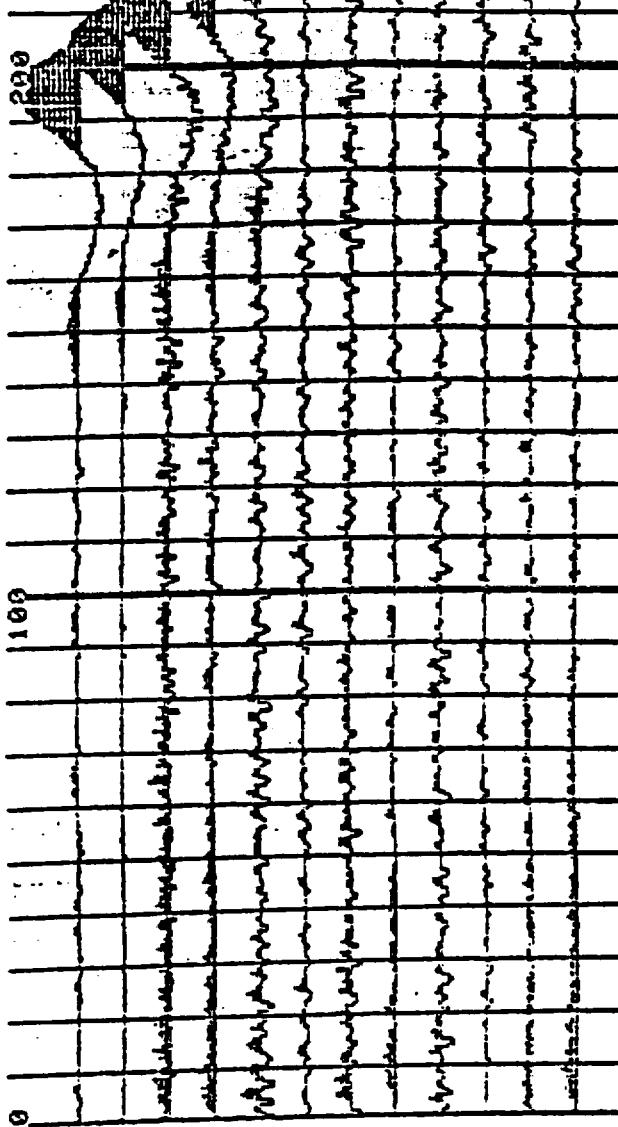
STACK COUNT 1

FILTER IN

DORNEY LANDFILL SP

1/5/88

11:17 AM Inside



EGG GEOMETRICS
ES-125 VERSION 2.0

FILE NO 1463

RECORD TIME	CH	GN	TS
500 MSEC	1	60	14
500 MSEC	2	66	14
500 MSEC	3	72	16
500 MSEC	4	78	16
500 MSEC	5	84	16
500 MSEC	6	90	13
500 MSEC	7	96	14
500 MSEC	8	102	20
500 MSEC	9	108	20
500 MSEC	10	114	20
500 MSEC	11	120	20
500 MSEC	12	126	20
500 MSEC	13	132	20

DELAY TIME 0 MSEC

STACK COUNT 1

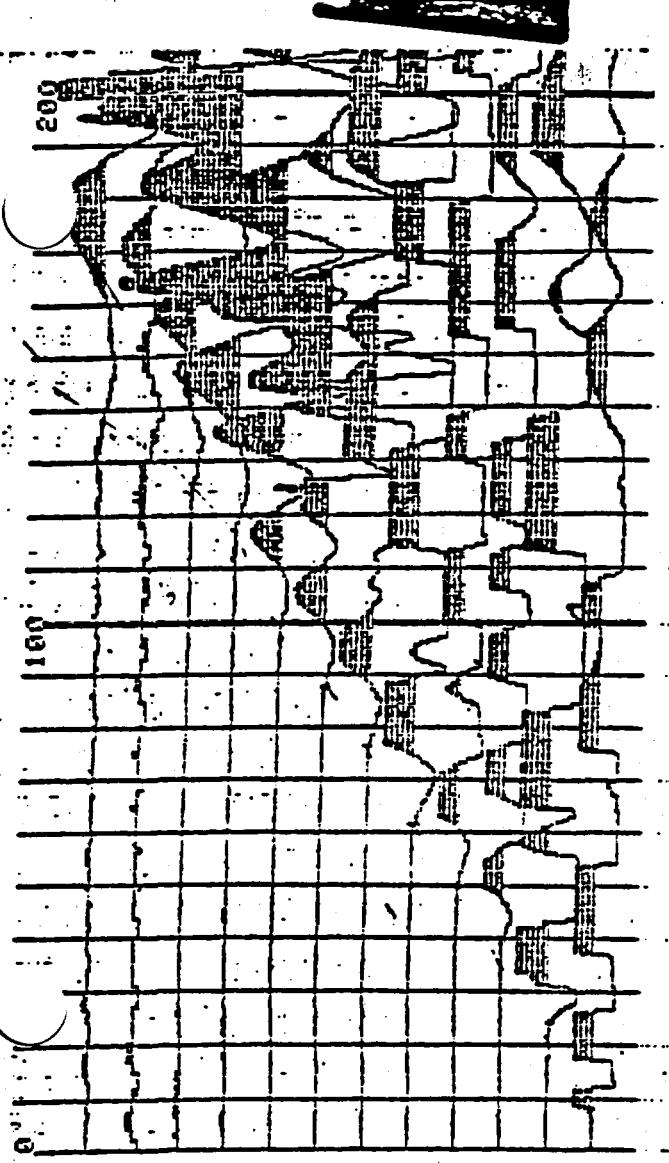
FILTER IN

DORNEY LANDFILL SP

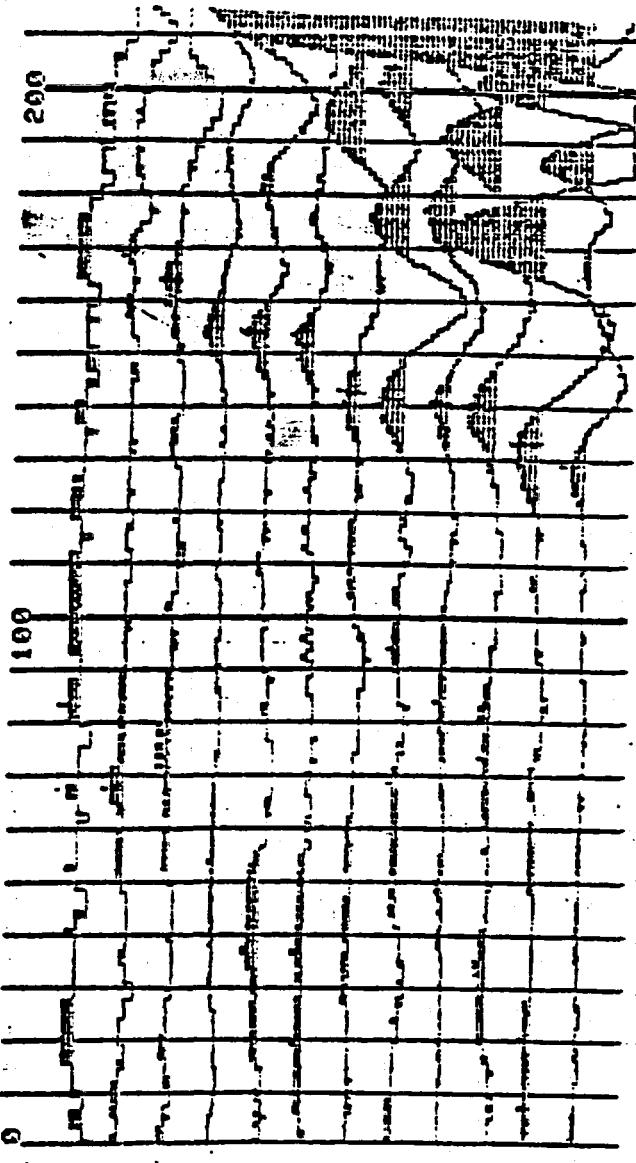
1/5/88
12:11 AM

Inside

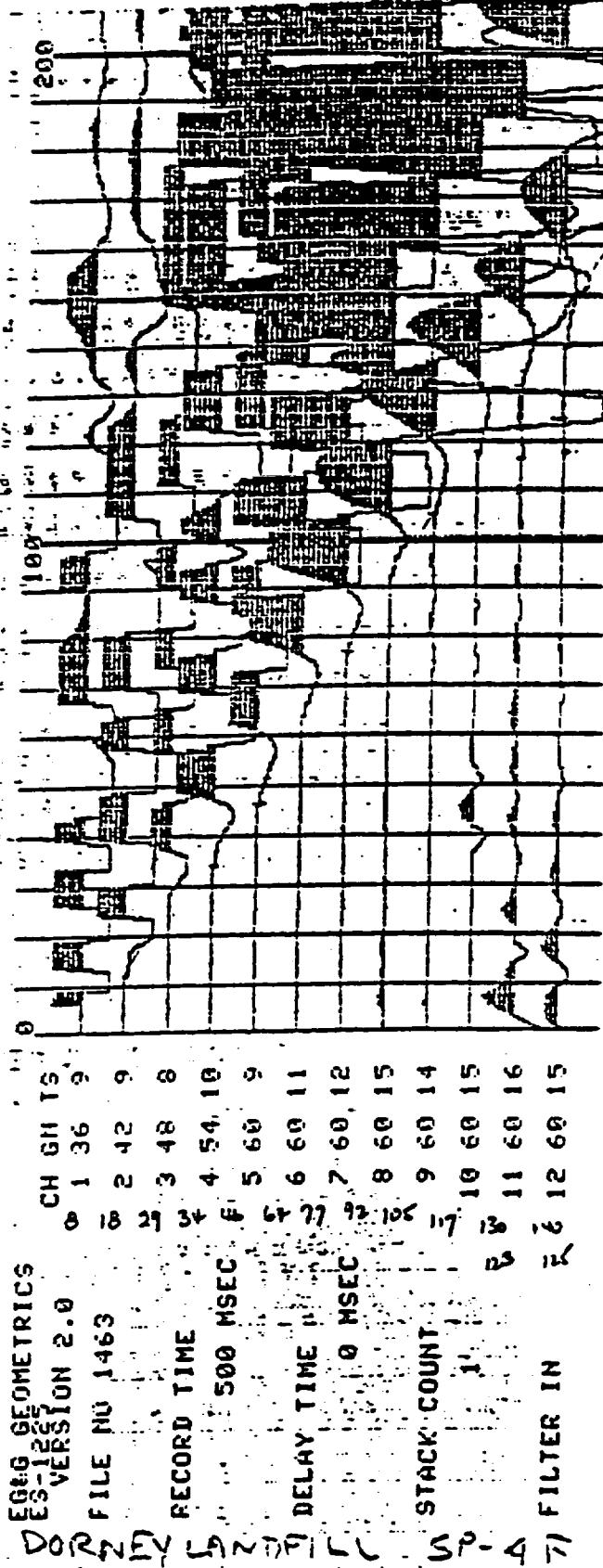
AR301058



E66 GEOMETRICS
EST 1235 CH BH TS
VERSION 2.0. 73 1 60 16
FILE NO 1463 73 2 69 18
RECORD TIME 74 3 66 15
500 MSEC 74 4 60 14
DELAY TIME 75 5 60 14
0 MSEC 76 6 60 12
STACK COUNT 76 7 60 9
9 76 8 69 9
9 76 9 54 8
14 76 10 42 8
14 76 11 42 9
FILTER IN t-18 t-118 d.52
SP-4 R

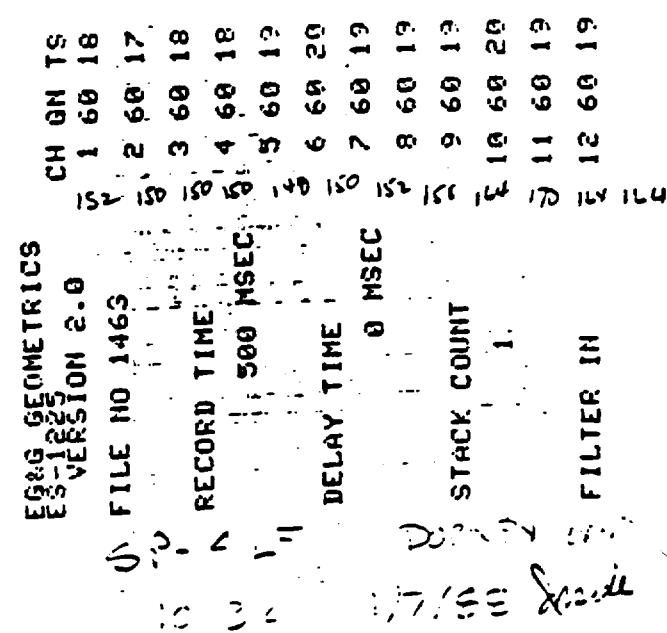


AR301059



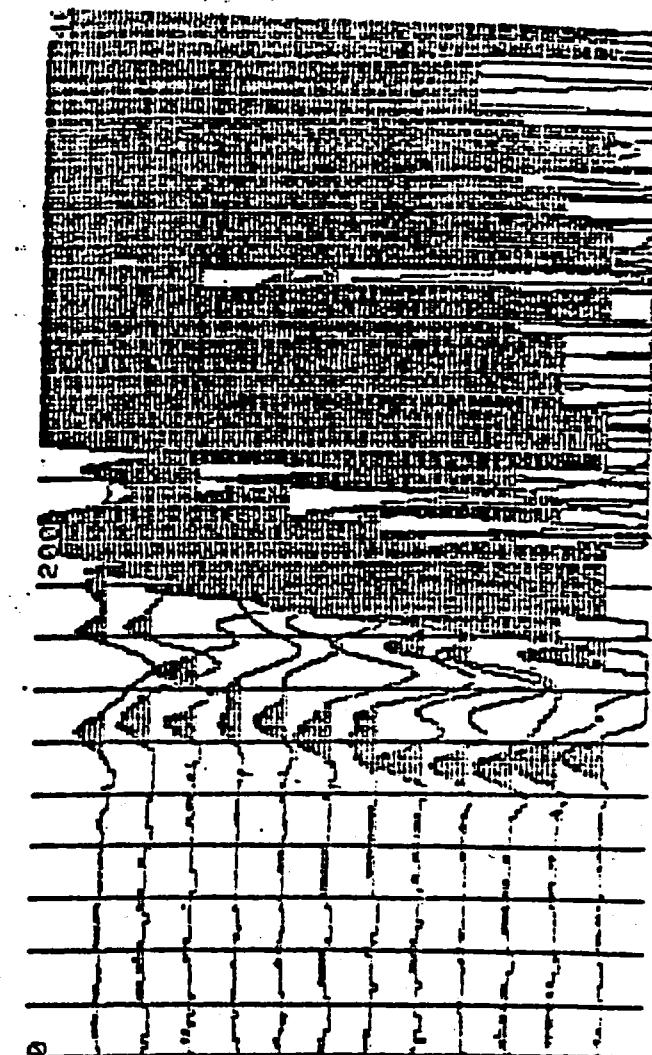
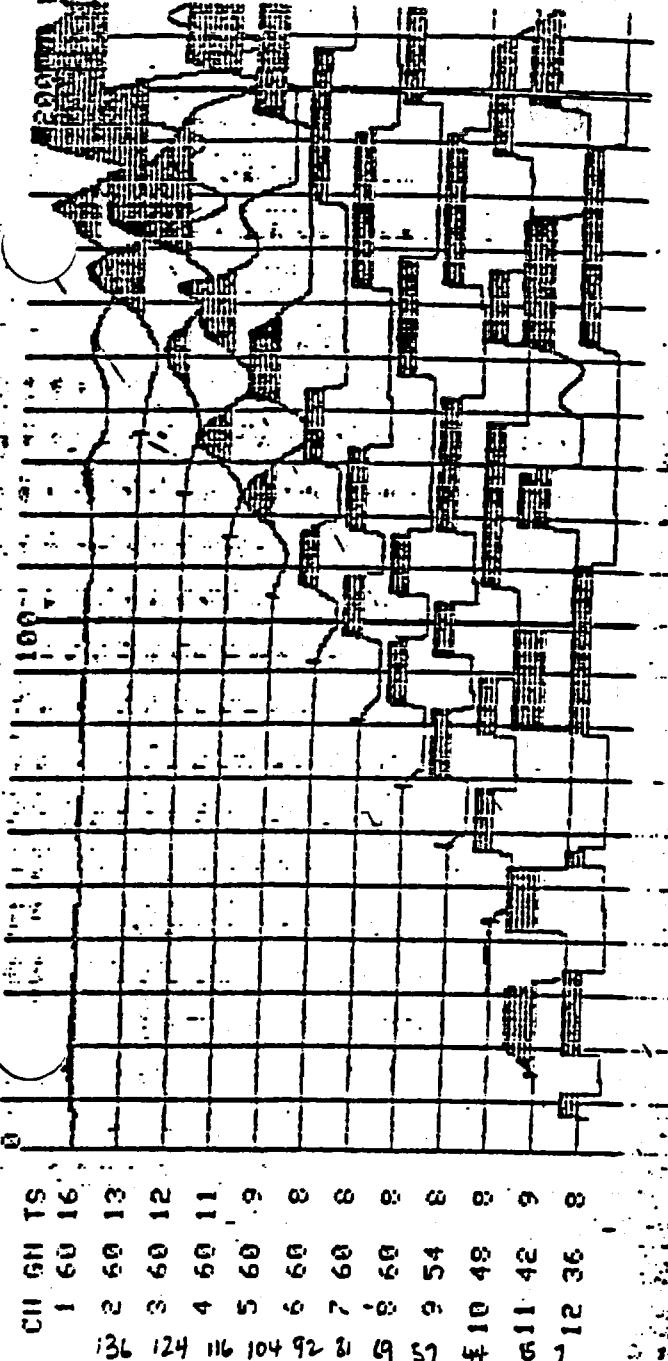
1/7/83 10:34 AM

Jessie



AR301060

EGG GEOMETRICS
 VERSION 2.0
 FILE NO 1463
 SP-5 R
 DORNEY LANDFILL
 11:06 AM 1/7/83
 Jossie



EGG GEOMETRICS
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 1000 msec
 DELAY TIME 0 msec
 STACK COUNT 1
 FILTER OUT 12 36 8
 CH GN TS
 1 60 17
 2 60 18
 3 60 19
 4 60 17
 5 60 17
 6 60 18
 7 60 19
 8 60 19
 9 60 19
 10 48 8
 11 42 9
 12 36 8

SP-5 LR
 1/7/83 11:06 AM
 charged rec length
 on long shots

Jossie

AR301061

Egg Geometrics
version 2.0
SP SF FILE NO 1463
RECORD TIME 0 MSEC
500 MSEC
DELAY TIME 0 MSEC
STACK COUNT 1
FILTER OUT 5

DORNEY LANDFILL
11:02AM 1/7/82

Inside

Egg Geometrics
version 2.0
SP SF FILE NO 1463
RECORD TIME 0 MSEC
500 MSEC
DELAY TIME 0 MSEC
STACK COUNT 1
FILTER OUT 5

DORNEY LANDFILL
10:58AM 1/7/82

Inside

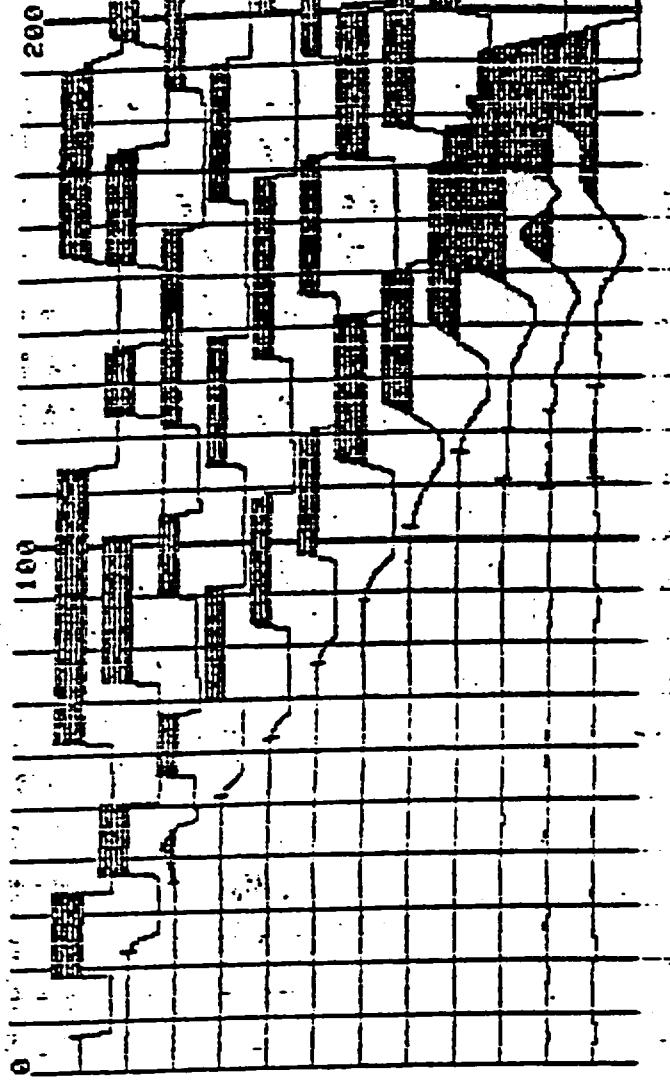
AR301062

EGEG GEOMETRICS
 VERSION 2.0 CH 6H TS
 FILE NO 1463 150 17
 RECORD TIME 3:69 16
 500 MSEC 4:50:15.
 DELAY TIME 5:00:10
 0 MSEC 5:00:08
 STACK COUNT 6:00:08
 1 54 F 8
 10 49 F 8
 11 42 N 9
 FILTER OUT 12 36 N 8

Darney Landfill Jessie
 SP-GR 11:25 AM
 1/7/88

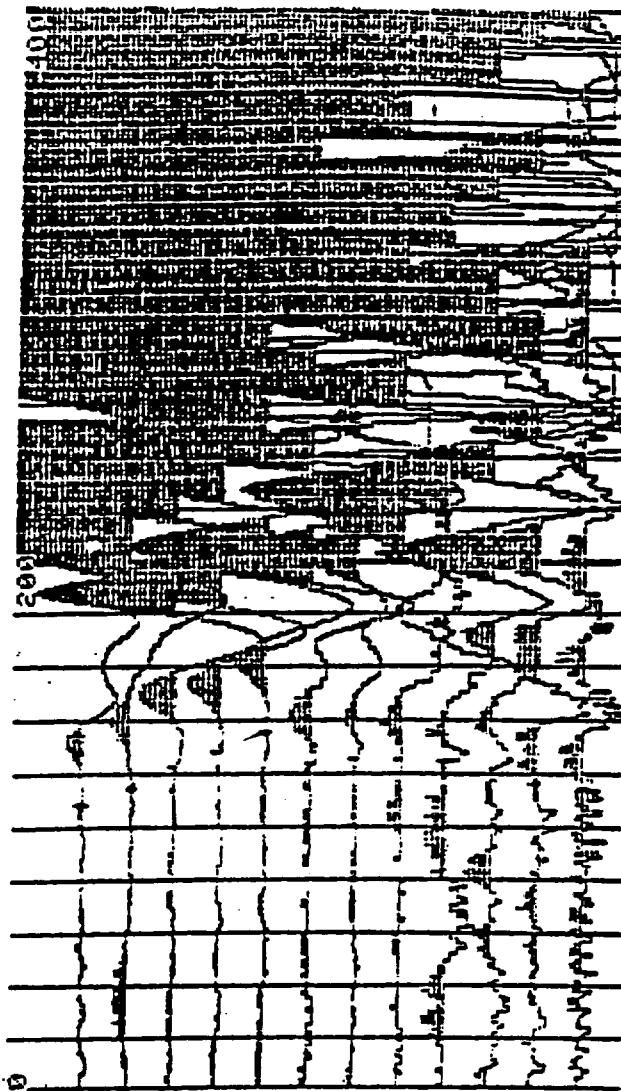
EGEG GEOMETRICS
 VERSION 2.0 CH 6H TS
 FILE NO 1463 1 60 19
 RECORD TIME 2 60 18
 1000 MSEC 3 60 17
 DELAY TIME 4 60 17
 0 MSEC 5 60 16
 STACK COUNT 6 60 17
 1 7 60 15
 11 60 14
 FILTER OUT 12 60 14

AR301063



EGG GEOMETRICS
 EGG-SESSION 2.0
 RECORD TIME: 0 MSEC
 500 MSEC
 DELAY TIME: 0 MSEC
 STACK COUNT: 1
 FILTER OUT: 11 60 12 65 13
 DORNEY LANDFILL SP-6
 1/7/83 11:22 AM

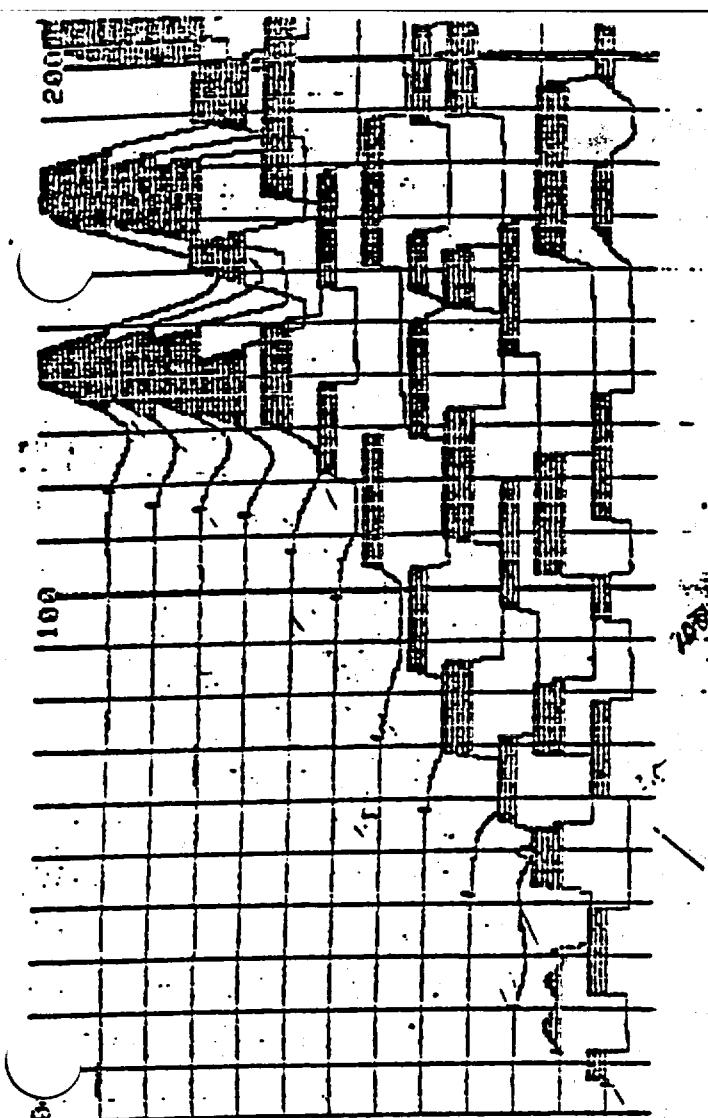
absorb



EGG GEOMETRICS
 EGG-SESSION 2.0
 FILE NO 1463
 RECORD TIME: 0 MSEC
 1000 MSEC
 DELAY TIME: 0 MSEC
 STACK COUNT: 1
 FILTER OUT: 12 60 15
 DORNEY LANDFILL
 11:19 AM 1/7/83

brick

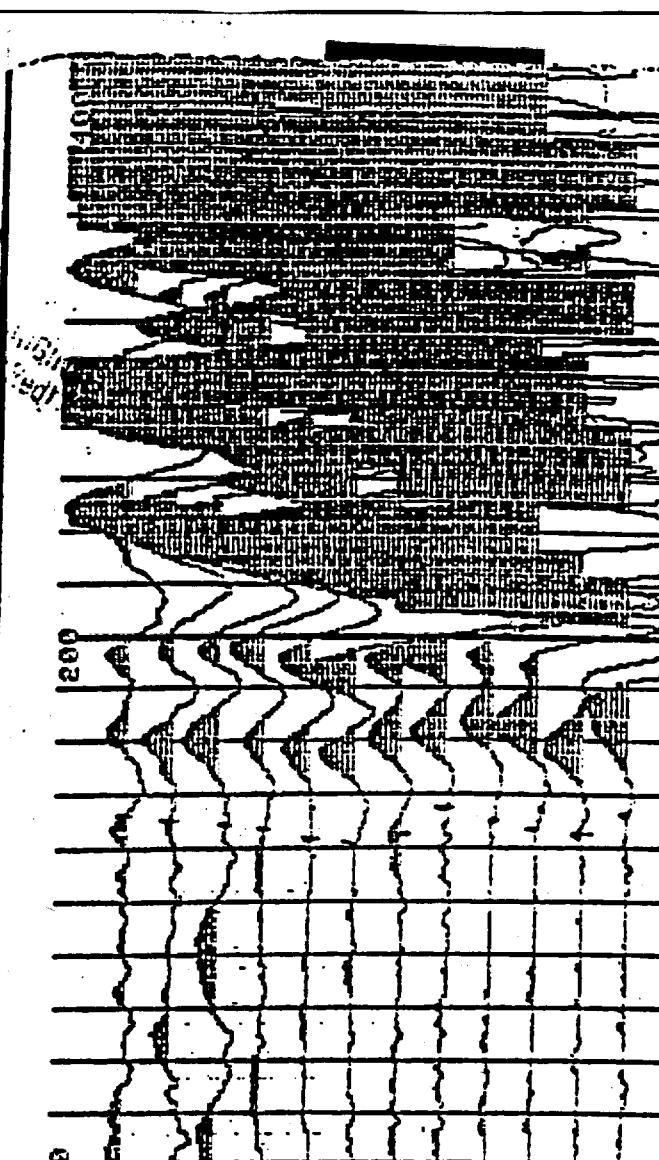
AR301064



EGEG GEOMETRICS	CH	GH	TS
ES-1255	2.0		
V-EFSTION	13		
FILE NO.	1463	2	1
RECORD TIME	115	60	11
500 MSEC	114	5	60
DELAY TIME	107	6	60
0 MSEC	7	60	6
STACK COUNT	4	54	9
FILTER OUT	1	10	48
	20	11	42
	20	12	36

DORNEY LANDFILL
2:00PM 11/7/85

José de

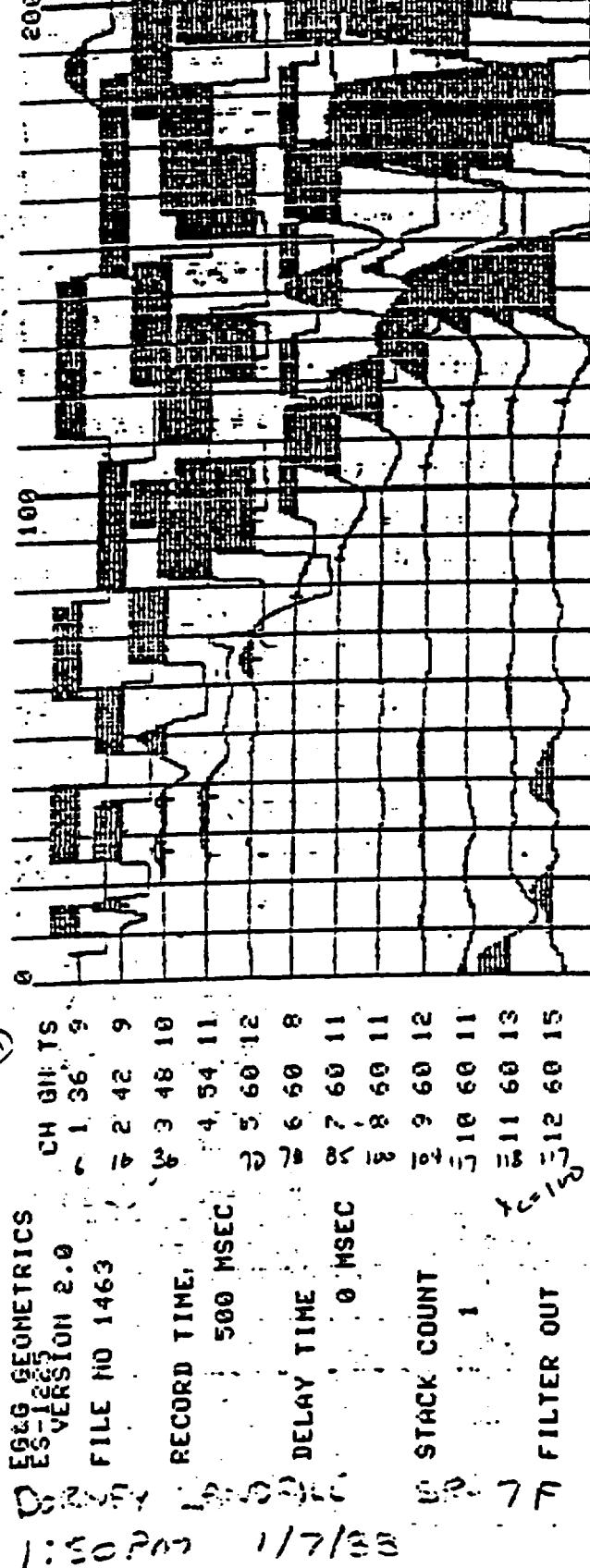


EGG GEOMETRICS	CH GN TS	CH GN TS
ES-1235	1 60 16	1 60 16
VERSION 2.0	132	132
FILE NO 1463	138	138
RECORD TIME 11	3 60 16	3 60 16
1000 MSEC	128	128
DELAY TIME	4 60 15	4 60 15
	127	127
	123	123
	120	120
	115	115
	6 60 15	6 60 15
	7 60 16	7 60 16
	8 60 16	8 60 16
STACK COUNT	9 60 15	9 60 15
	1	1
FILTER OUT	132	132

X RAY LAB 2
D-7-2 2:00pm 1/7/88

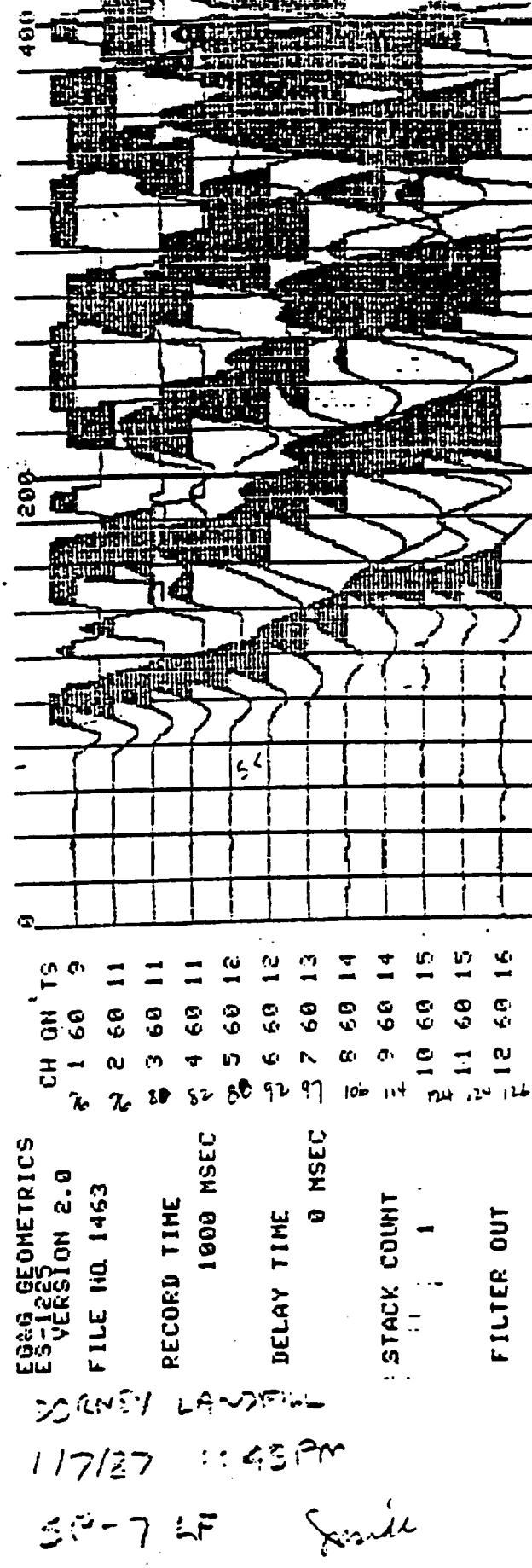
DORRIVE, LAFAYETTE --
SP-72? 21:00M 17/23

AR301065



DORNFY LANDFILL
 1:50 PM 1/7/80
 7F

Scalda

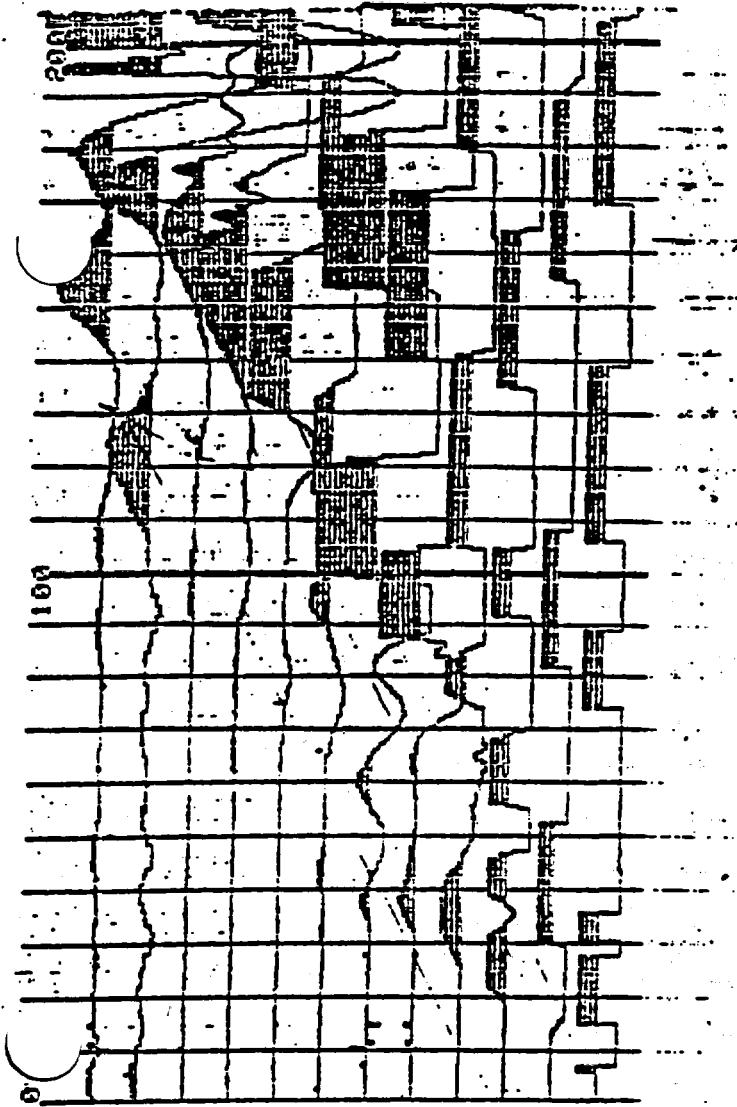


DORNFY LANDFILL
 1/7/80 1:40 PM

SC-7 5F

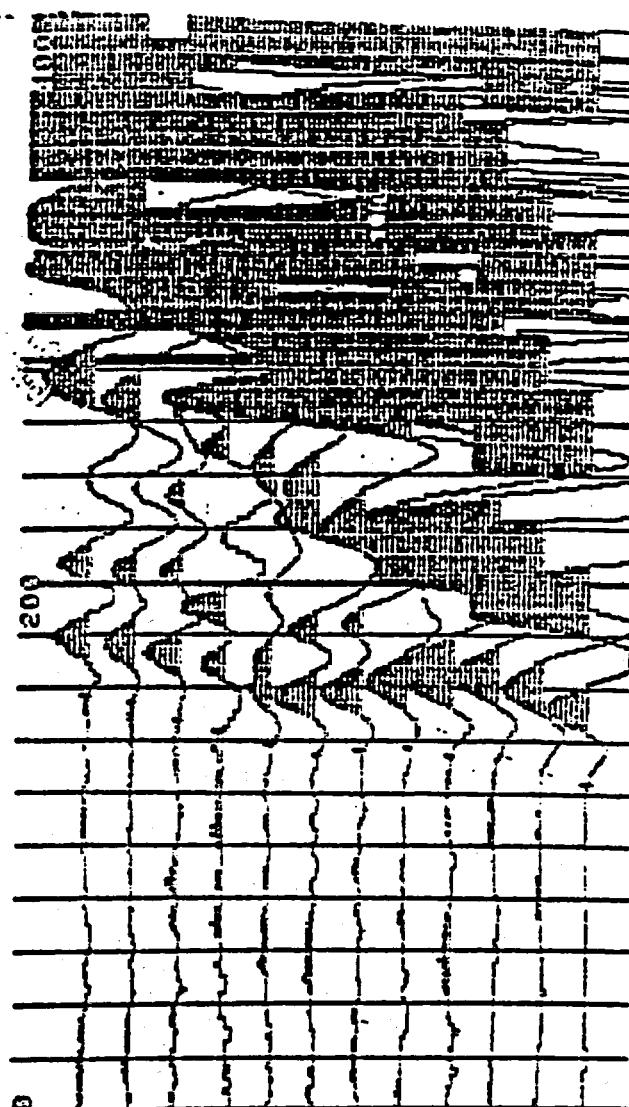
Scalda

AR301066



EGG GEOMETRICS
 EXP. SESSION 2.0 CH 01 TS
 FILE NO 1463 SP 3 1 69 16
 RECORD TIME 4 2 69 17
 3 3 69 11
 4 69 11
 5 69 10
 6 69 9
 7 69 11
 8 69 10
 9 69 9
 10 48 8
 11 42 7
 12 36 6
 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 R FILTER OUT

DORNEY LANDFILL 5°-0 1/2
 1:33 PM 1/7/88 Jmle



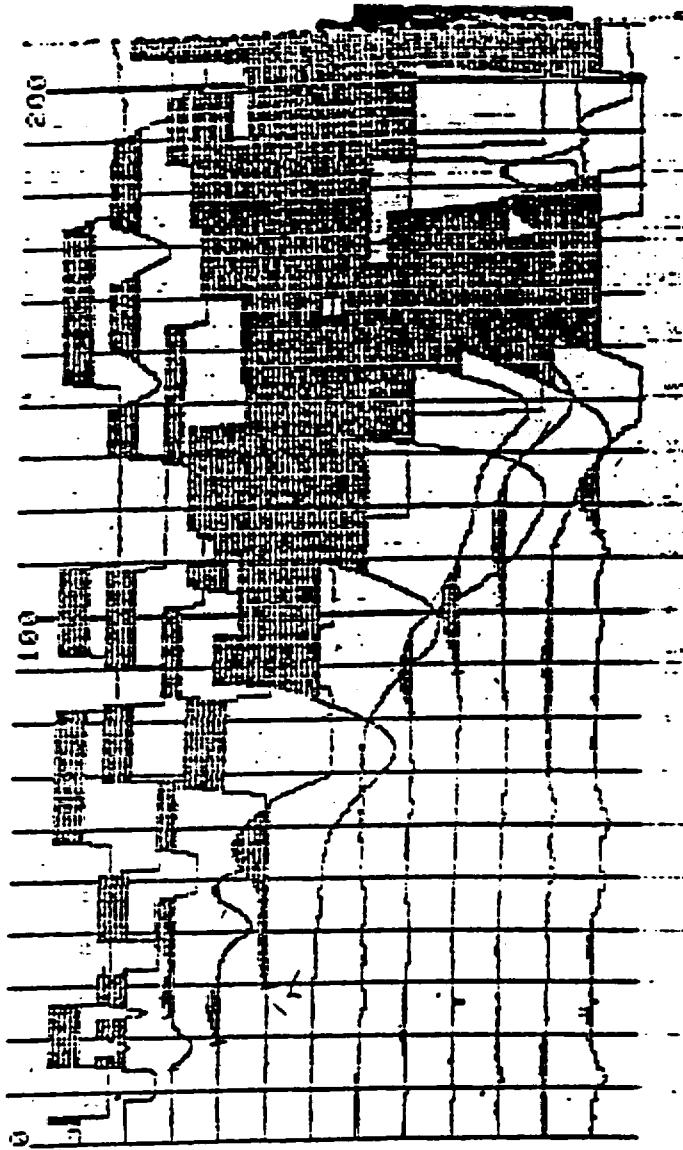
EGG GEOMETRICS
 EXP. SESSION 2.0 CH 01 TS
 FILE NO 1463 SP 2 69 17
 RECORD TIME 3 69 17
 4 69 18
 5 69 16
 6 69 16
 7 69 17
 8 69 15
 9 69 14
 10 69 13
 DELAY TIME
 0 MSEC
 STACK COUNT
 1
 R FILTER OUT

DORNEY LANDFILL 5°-0 1/2
 2:18 PM 1/7/88 Jmle

AR301067

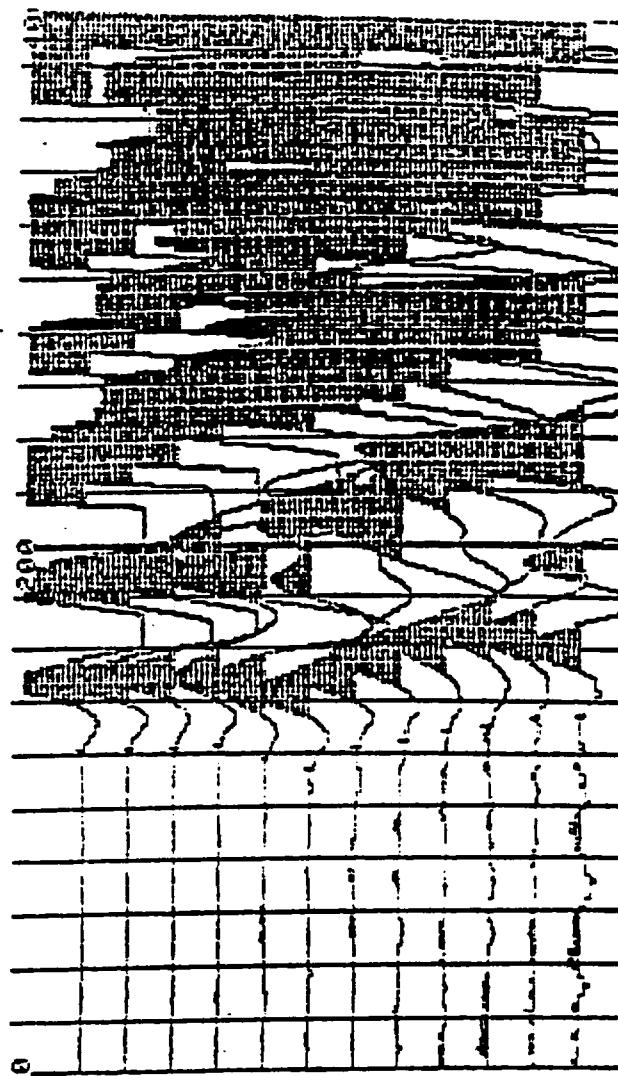
EGG GEOMETRICS
 EST-1255 VERSION 2.0
 FILE NO 1463
 RECORD TIME 12:50:500 MSEC
 DELAY TIME 0 MSEC + 1000 MSEC
 STACK COUNT 9 60 13
 1 10 60 13
 11 60 16
 FILTER OUT 12 60 17

DORNEY LANDFILL SP-0
 2:28PM 11/7/83 Inside



EGG GEOMETRICS
 EST-1255 VERSION 2.0
 FILE NO 1463
 RECORD TIME 12:50:1600 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 11 60 15
 12 60 16
 13 60 17
 FILTER OUT

DORNEY LANDFILL SP-0
 2:28PM 11/7/83 Inside



AR301068

E&G GEOMETRICS

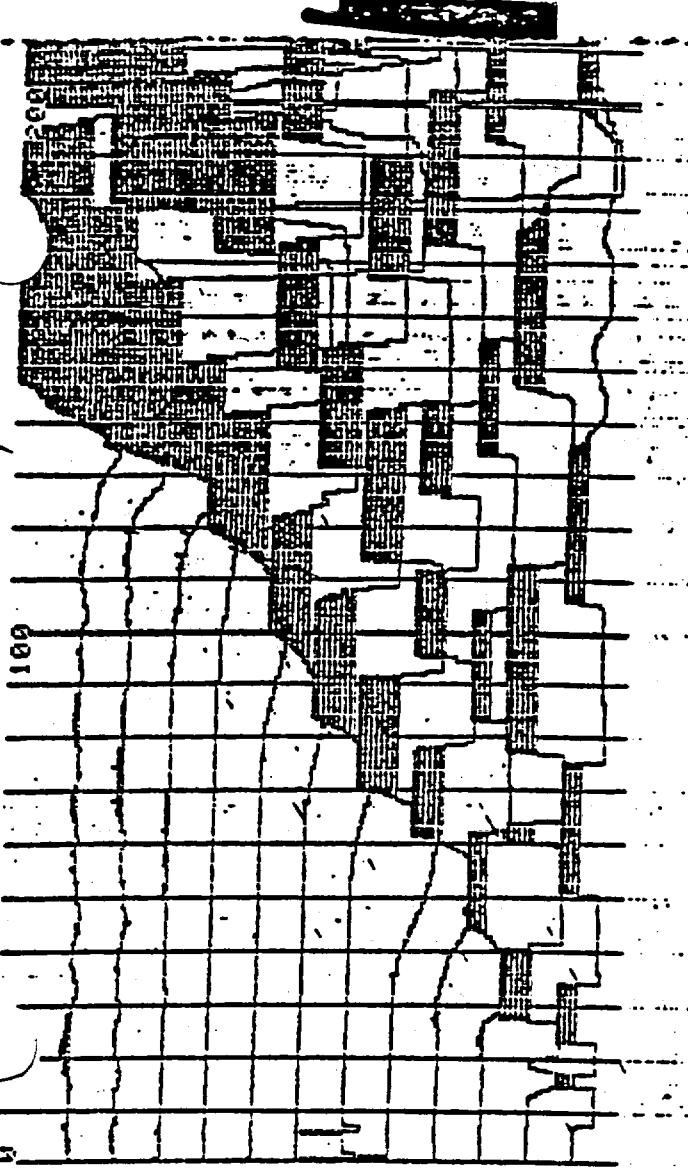
ES-1265
FILE NO 1463
RECORD TIME 1000 MSEC
DELAY TIME 0 MSEC
STACK COUNT 69

CH GN TS
1 69 16
2 69 17
3 69 15
4 69 13
5 69 11
6 69 10
7 69 10
8 69 10
9 54 9
10 48 8
11 42 9
12 36 8

FILTER OUT $k_{c_1 c_2}$

DORNEY LANDFILL
SP-9 R

50 1/7/83 profile



E&G GEOMETRICS

ES-1265
FILE NO 1463

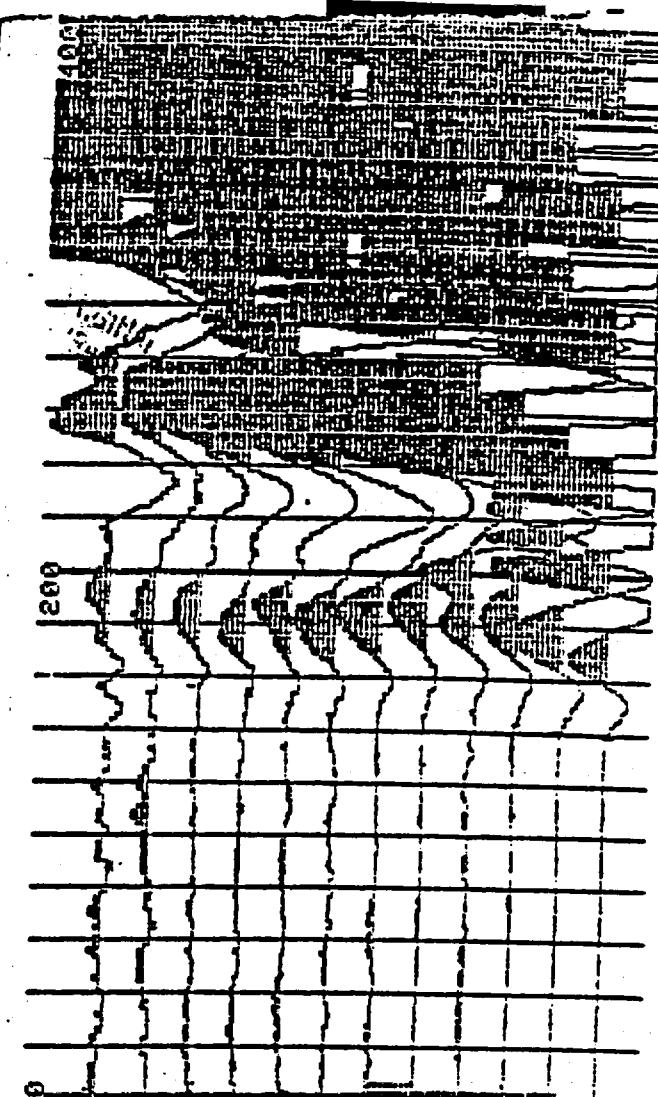
CH GN TS
1 69 18
2 60 18
3 60 17
4 69 17
5 60 17
6 60 17
7 69 17
8 69 15
9 60 16
10 60 14
11 60 14
12 60 13

DORNEY LANDFILL

SP-9 L/R

2:50 PM 1/7/83

Profile



AR301069

EGG GEOMETRICS
EST-125 VERSION 2.0

FILE NO 1463

RECORD TIME

3:48 11

500 MSEC

4.54 11

DELAY TIME

6.60 11

0 MSEC

7.60 12

STACK COUNT

9.60 13

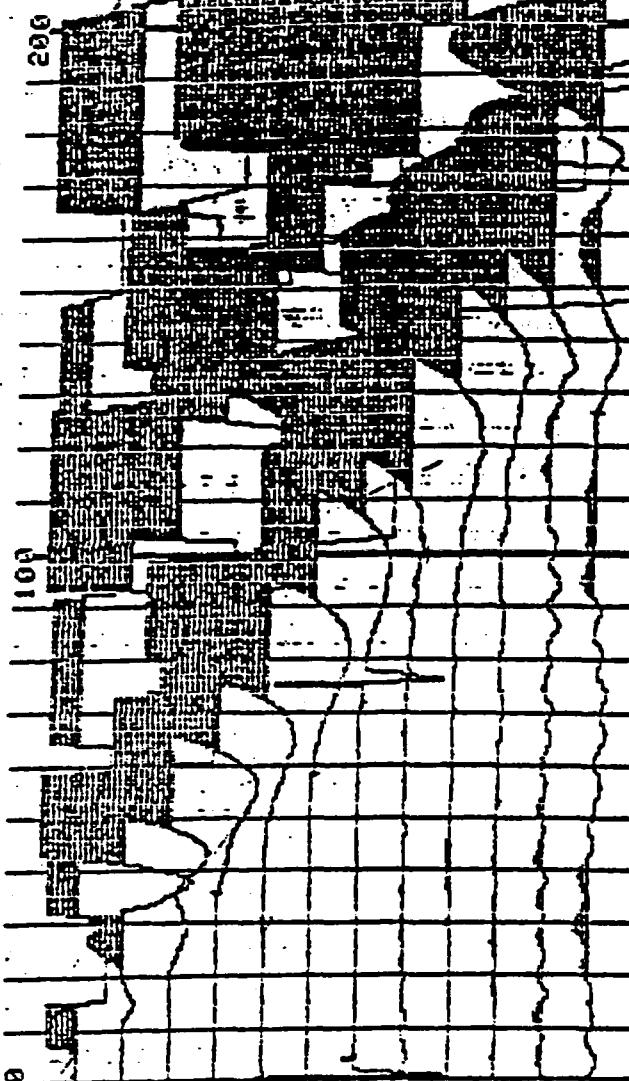
1

10.60 14

11.60 16

FILTER OUT

12.60 16



DORNEY LANDFILL
SP-4 F

2:54 PM 1/7/88

1
2
3
4
5
6
7
8
9
10
11
12

EGG GEOMETRICS

EST-125 VERSION 2.0

FILE NO 1463

RECORD TIME

1000 MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

2

3

4

5

6

7

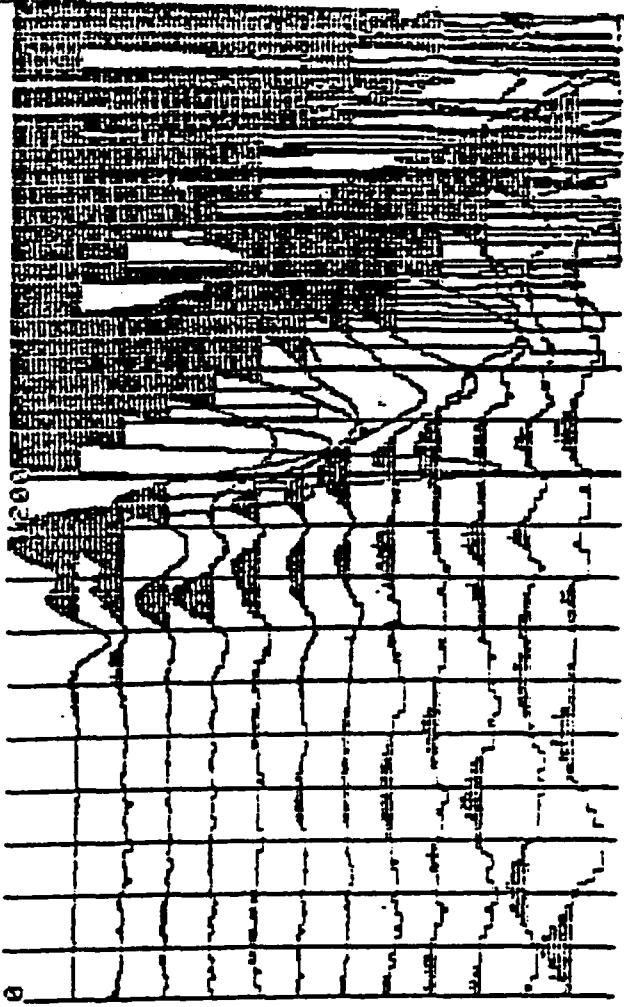
8

9

10

11

12



DORNEY LANDFILL
SP-9 LF 2:50 PM

1/7/88
50' from 110010

6100W

bottom - top 35 ft

front side

AR301070

EG&G GEOMETRICS

EST-1225 VERSION 2.0

FILE NO 1463

RECORD TIME

1 60 12

2 60 11

3 60 10

4 60 9

5 60 8

6 60 7

7 60 6

8 60 5

9 54 8

10 48 9

11 42 9

12 36 8

FILTER OUT

*spacel*SP-10A DORNEY LANDFILL
11:08AM 11/8/88

11:08AM 11/8/88

EG&G GEOMETRICS

EST-1225 VERSION 2.0

FILE NO 1463

RECORD TIME

1 60 19

2 60 17

3 60 17

4 60 18

5 60 19

6 60 19

7 60 19

8 60 19

9 60 17

10 60 17

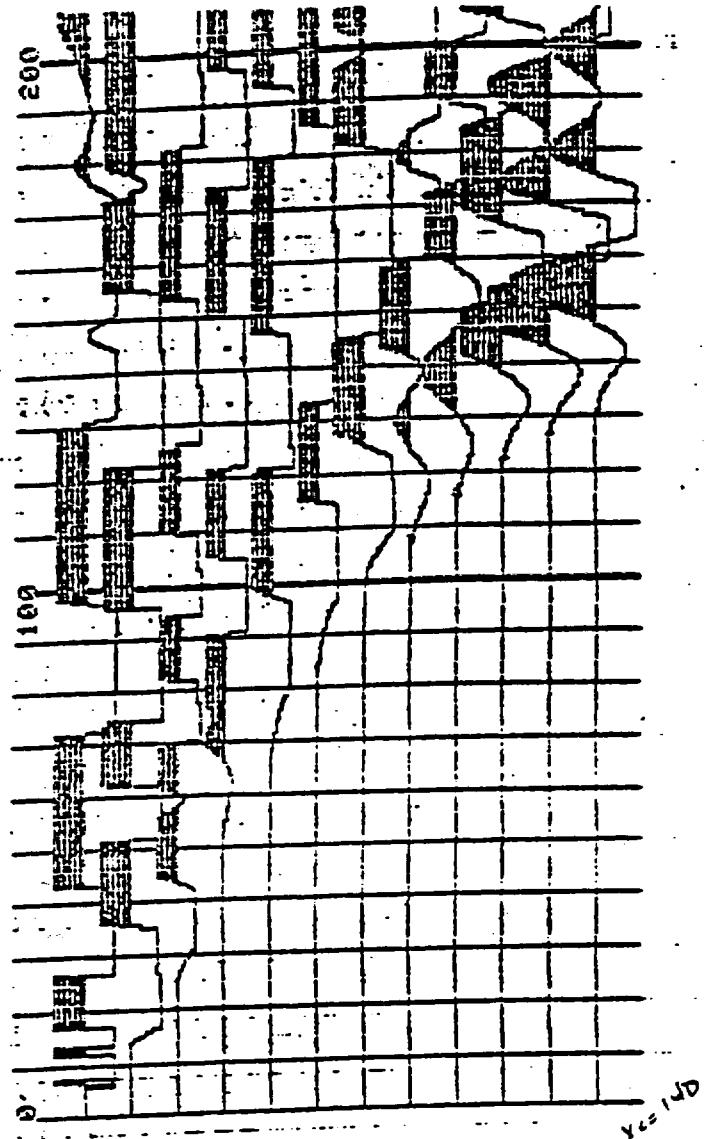
11 60 19

12 60 14

FILTER OUT

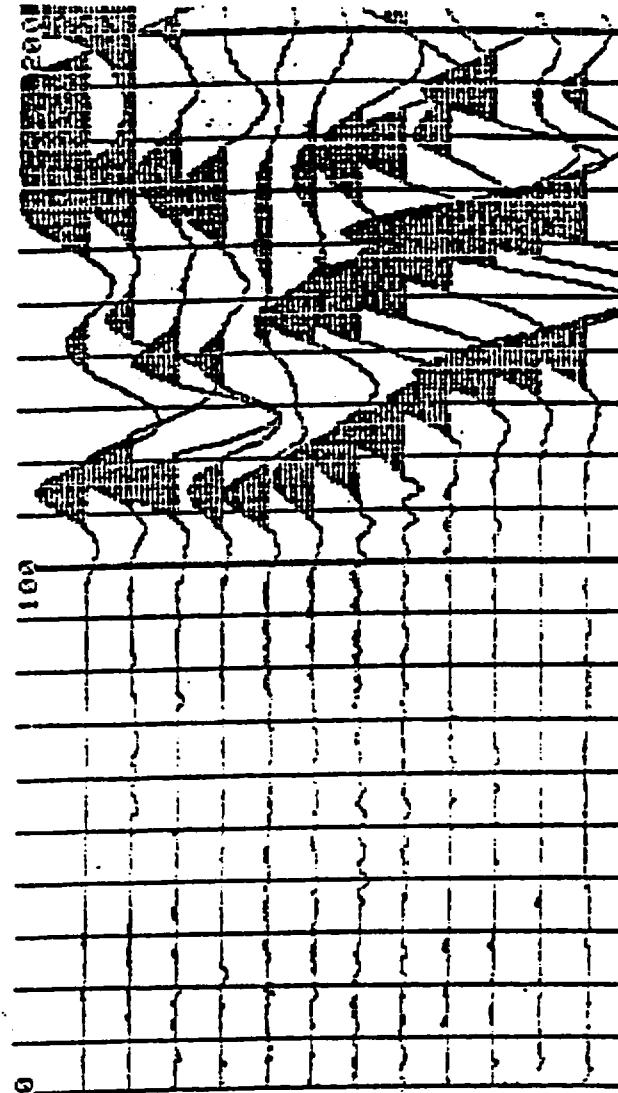
SP-10 LR DORNEY ROAD
11:17AM 11/8/88 *spacel*

AR301071



EG&G GEOMETRICS
 EGG-1255 VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 16
 FILTER OUT 12 60 12

SP-10F DORNEY ROAD
 11:02AM 1/8/88 Inside



EG&G GEOMETRICS
 EGG-1255 VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 16
 FILTER OUT 12 60 12

SP-10 LFP DORNEY LANDFILL
 11:00AM 1/8/88 Inside

AR301072

E&G GEOMETRICS

EST-1225

FILE NO 1463

RECORD TIME

500 MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

FILTER OUT

1

CH GN TS

3 48 9

4 54 10

5 60 10

6 60 10

7 60 11

8 60 12

9 60 15

10 60 14

11 60 15

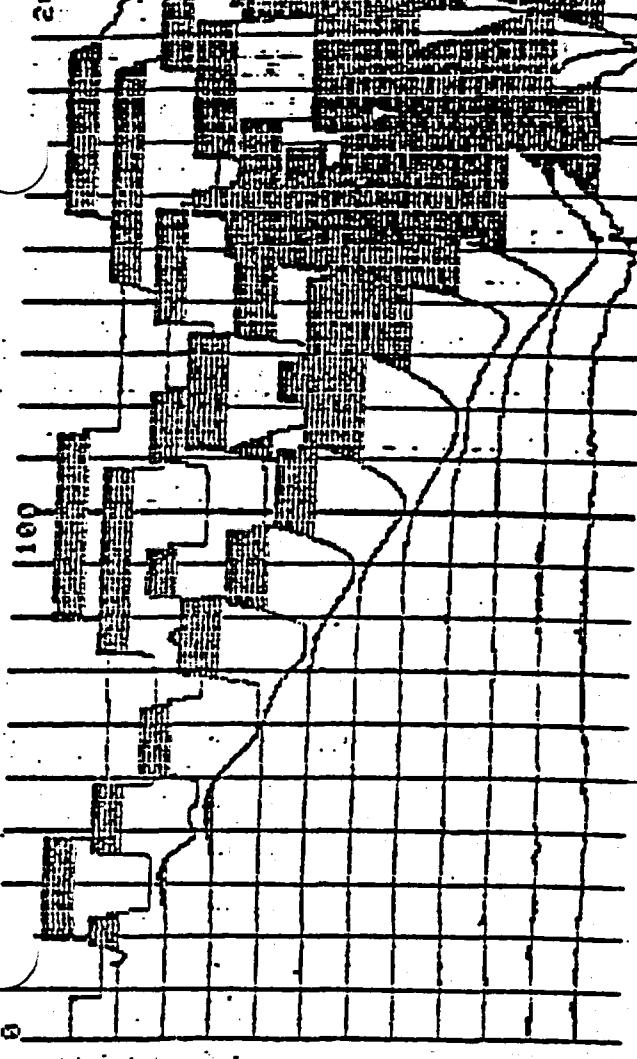
12 60 17

SP-11F

DORNEY LANDFILL

11:29 AM

1/5/88 Jessie



E&G GEOMETRICS

EST-1225

FILE NO 1463

RECORD TIME

500 MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

FILTER OUT

1

CH GN TS

1 60 9

2 60 11

3 60 13

4 60 14

5 60 14

6 60 14

7 60 15

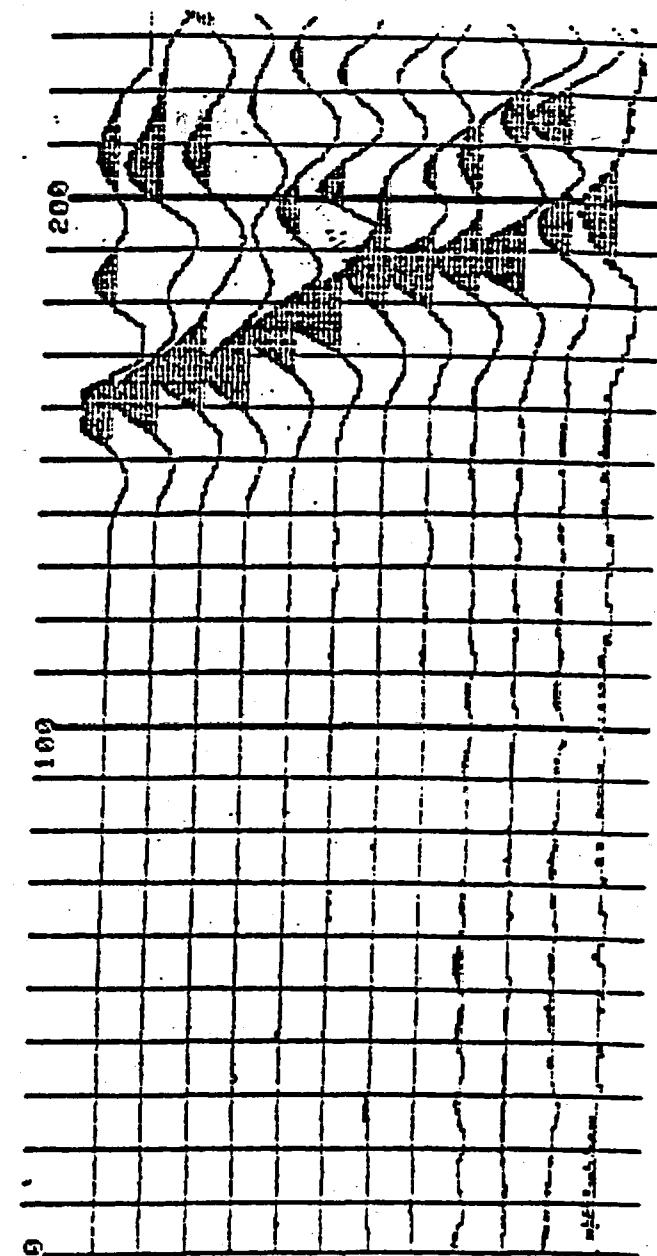
8 60 15

9 60 16

10 60 16

11 60 16

12 60 18



E&G GEOMETRICS

EST-1225

FILE NO 1463

RECORD TIME

500 MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

FILTER OUT

1

CH GN TS

1 60 9

2 60 11

3 60 13

4 60 14

5 60 14

6 60 14

7 60 15

8 60 15

9 60 16

10 60 16

11 60 16

12 60 18

SP-11LF DORNEY LANDFILL
11:27 AM 1/5/88 Jessie

AR301073

EG&G GEOMETRICS
ES-1625
FILE NO 1463

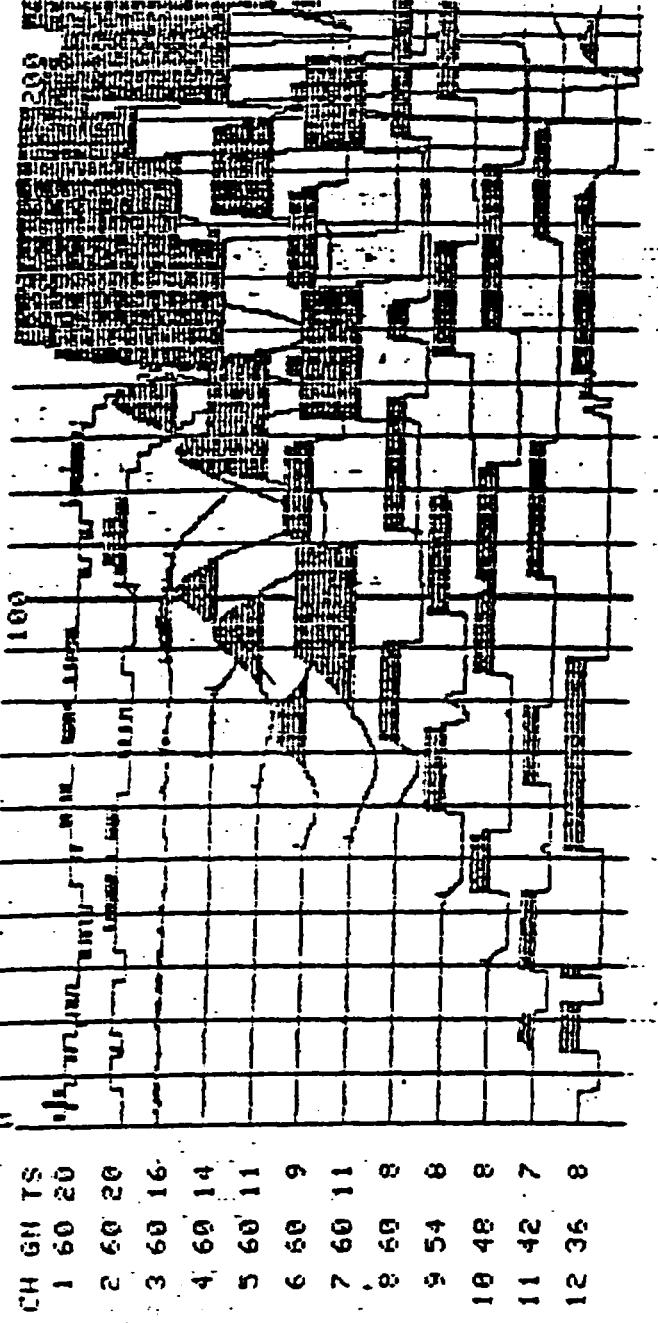
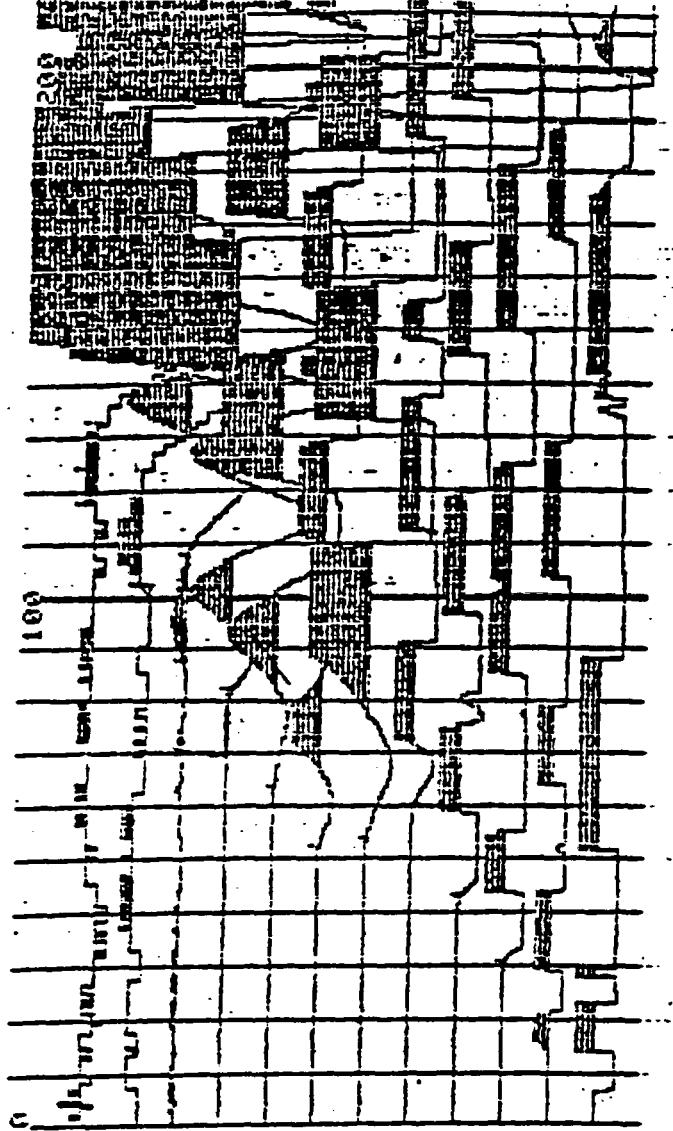
RECORD TIME 500 MSEC
DELAY TIME 0 SEC

STACK COUNT 9
1
FILTER OUT

SP-II R

DORNEY LANDFILL

11:32AM 1/8/88



EG&G GEOMETRICS
ES-1625
FILE NO 1463

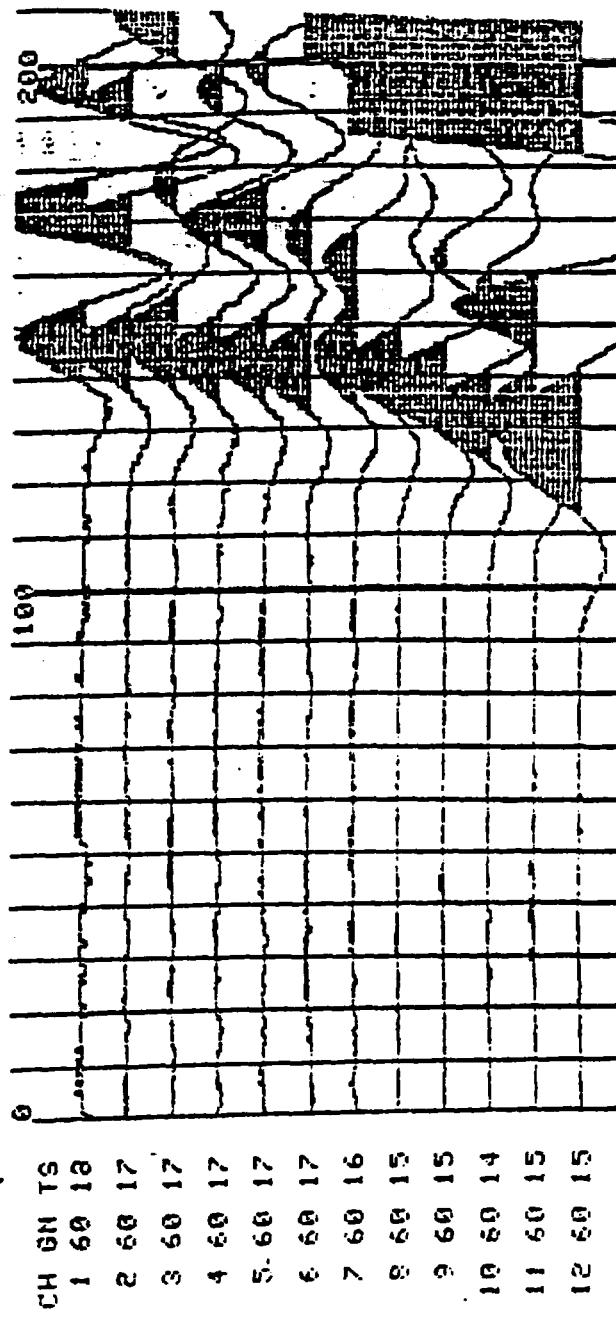
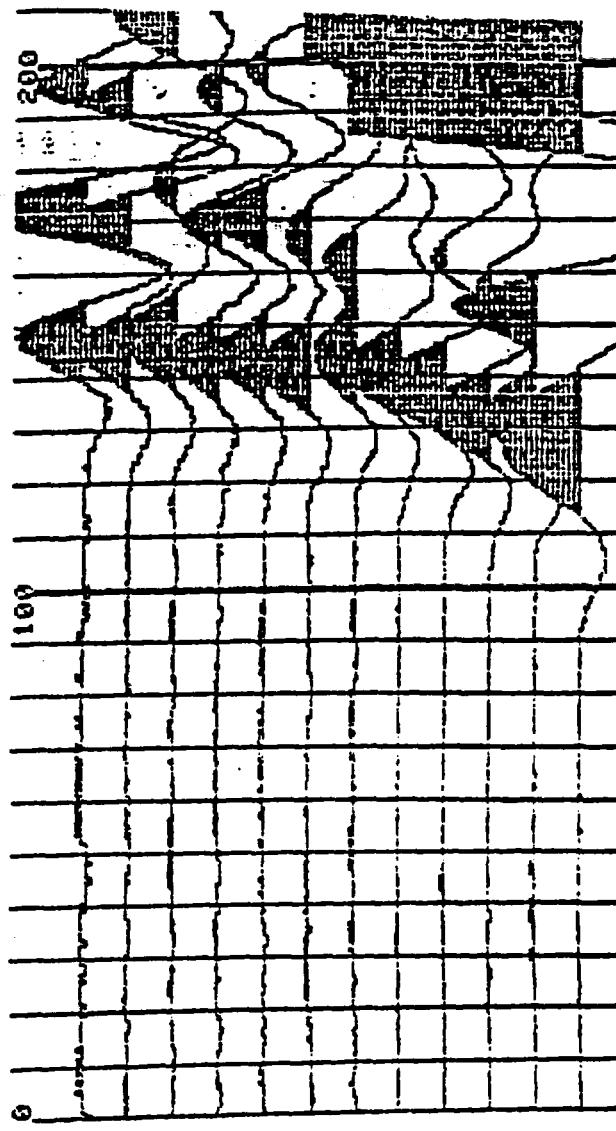
RECORD TIME 500 MSEC
DELAY TIME 0 SEC

STACK COUNT 9
1
FILTER OUT

SP-II R

DORNEY LANDFILL

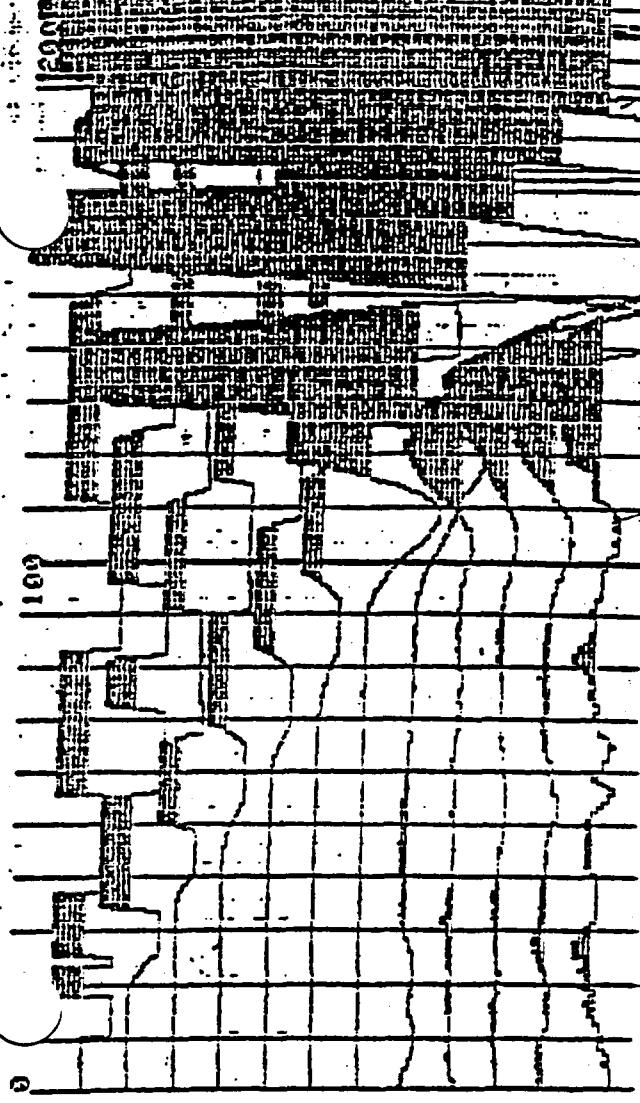
11:39AM 1/8/88



AR301074

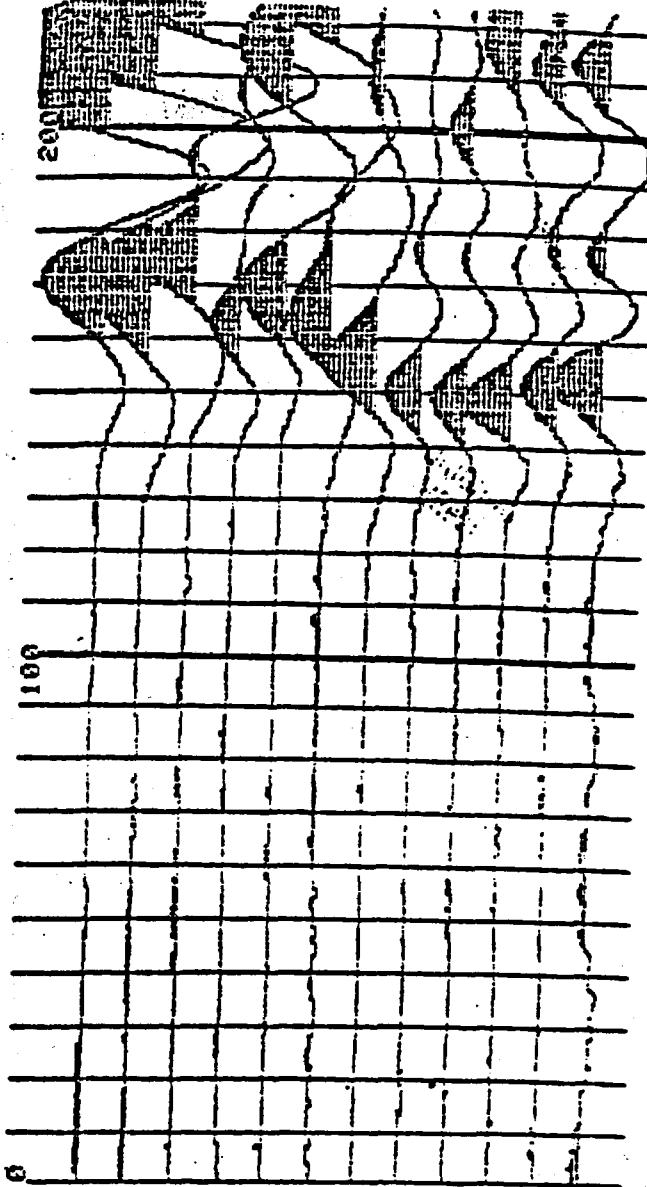
E&G GEOMETRICS
 EST-125 VERSION 2.0
 FILE NO 1463
 RECORD TIME : 500 MSEC
 DELAY TIME : 0 MSEC J₀, 7, 60 12
 STACK COUNT : 1 *inside*
 FILTER OUT : 12 60 18

SP-12 F DORNEY LANDFILL
 11:48 AM 1/8/88



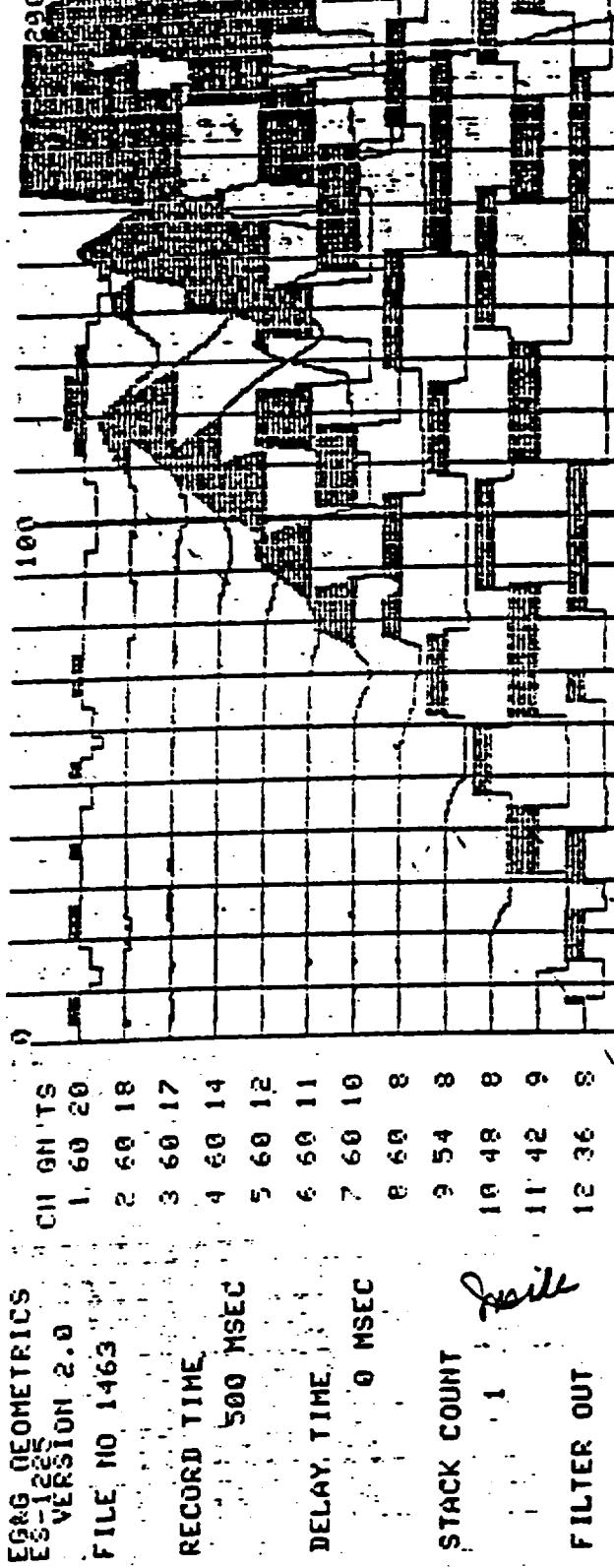
E&G GEOMETRICS
 EST-125 VERSION 2.0
 FILE NO 1463
 RECORD TIME : 500 MSEC
 DELAY TIME : 0 MSEC J₀, 7, 60 15
 STACK COUNT : 1 *inside*
 FILTER OUT : 12 60 16

SP-12 L DORNEY LANDFILL
 11:46 AM 1/8/88



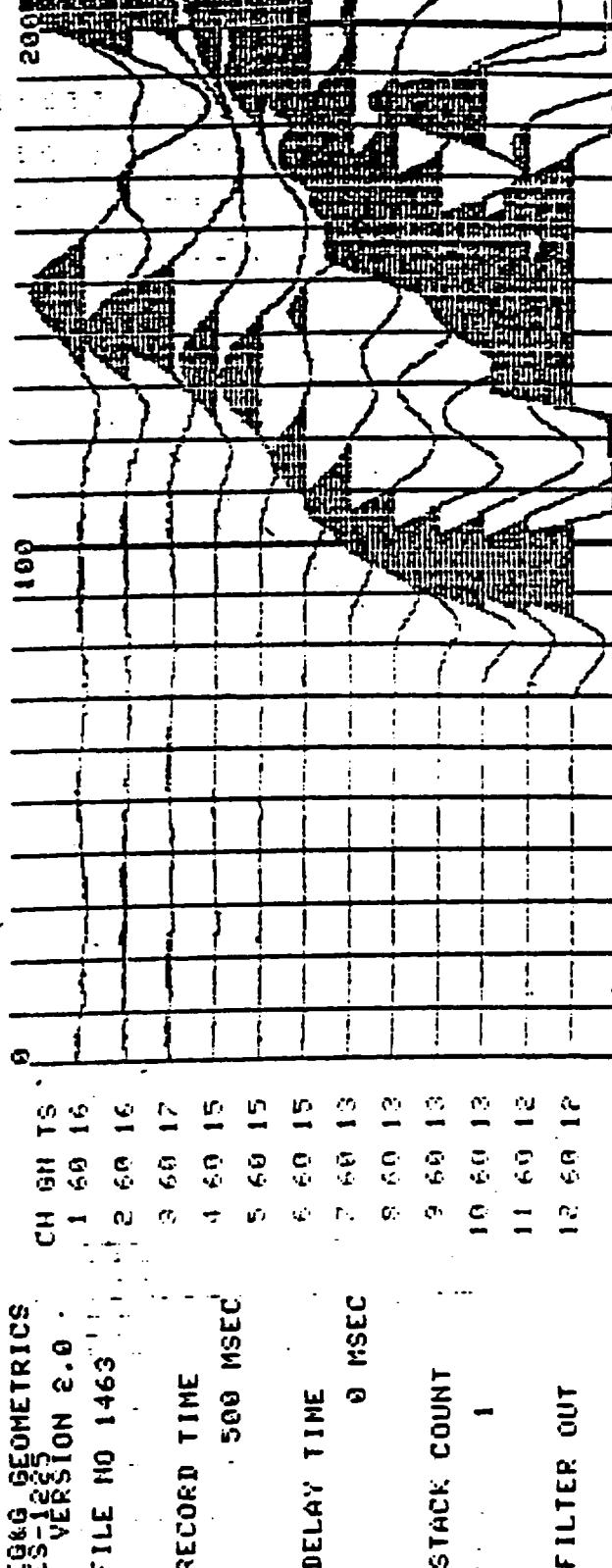
AR301075

299



SP-12R DORNEY LANDFILL
11:51 1/8/88

299



SP-12 LR DORNEY LANDFILL
11:54AM 1/8/88 *fail*

AR301076

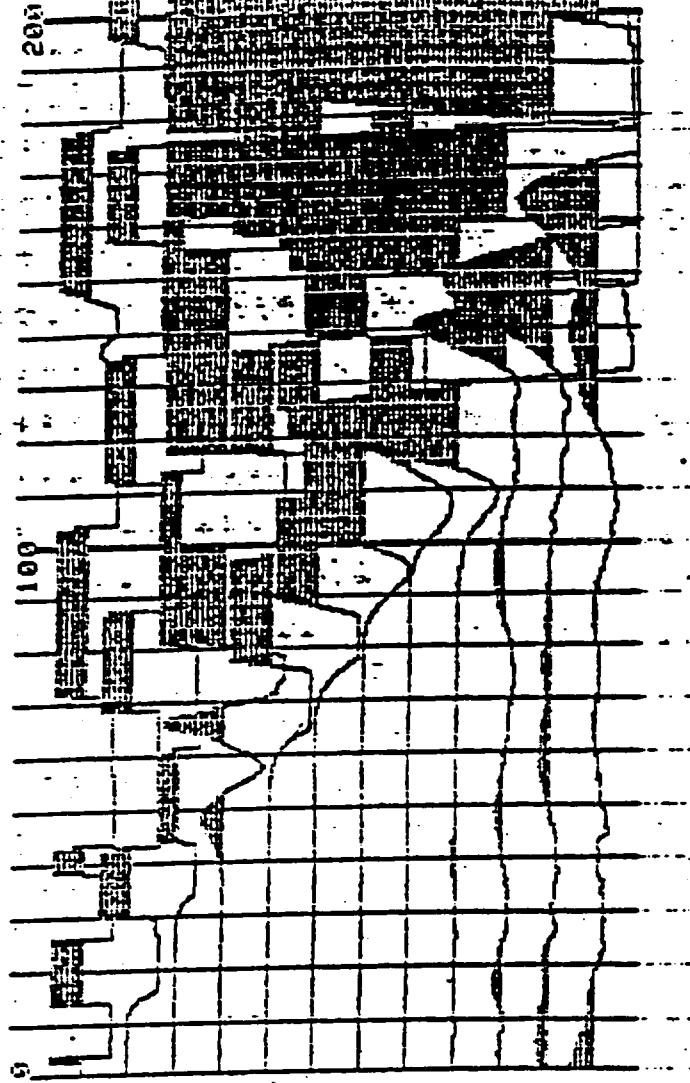
E&G GEOMETRICS
EST-1225 VERSION 2.0
FILE NO 1463
RECORD TIME 3 60 16
500 MSEC 2 60 16
DELAY TIME 6 60 16
0 MSEC 5 60 15
STACK COUNT 9 54 8
1 10 48 8
11 42 9
FILTER OUT 12 36 9

SP-13 R DORNEY LAND FILL
2:25 PM 1/8/88 Inside

E&G GEOMETRICS
EST-1225 VERSION 2.0
FILE NO 1463
RECORD TIME 3 60 18
500 MSEC 2 60 18
DELAY TIME 6 60 18
0 MSEC 7 60 18
STACK COUNT 9 60 16
1 10 60 16
11 60 11
FILTER OUT 12 60 11

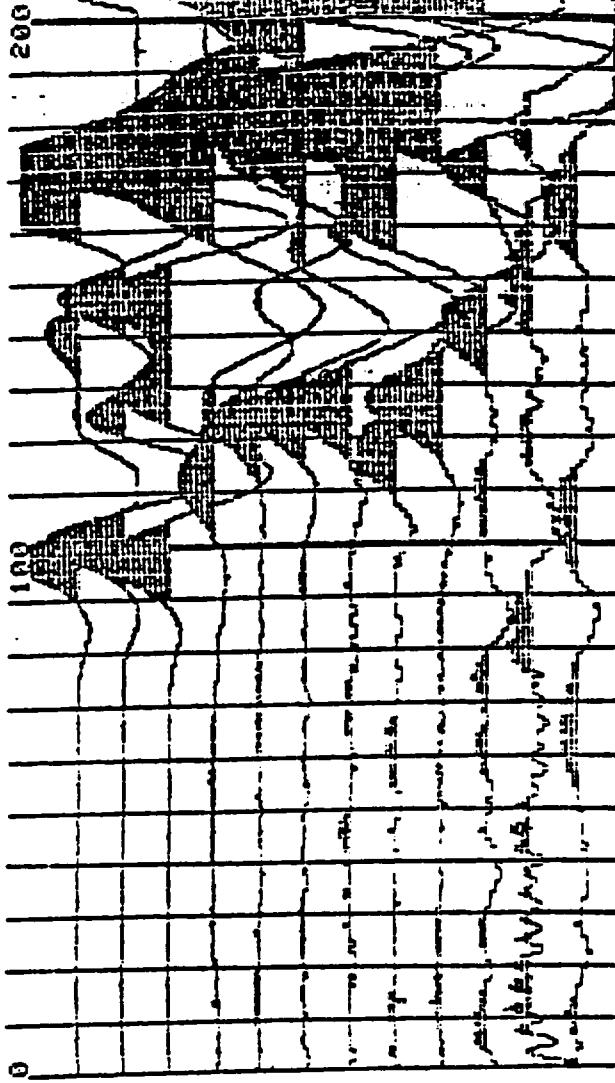
SP-13 LR DORNEY LANDFILL
2:41 PM 1/8/88 190' offset

AR301077



EGG GEOMETRICS
 ES-VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER OUT

SP-13F DORNEY LANDFILL
 2:22PM 1/8/88 Jessie



EGG GEOMETRICS
 ES-VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER OUT

SP-13 LF DORNEY LANDFILL
 2:19 PM 1/8/88 Jessie

AR301078

EG&G GEOMETRICS
ES-1255 VERSION 2.0
FILE NO 1463

RECORD TIME 3:46 PM
500 MSEC 5 60 11
DELAY TIME 6 60 10
0 MSEC 7 60 10
STACK COUNT 8 60 10
10 48 9
11 42 9
12 36 8

sample

FILTER OUT

P-14 R DORNEY LANDFILL
3:39PM 1/8/82

EG&G GEOMETRICS

ES-1255 VERSION 2.0
FILE NO 1463

RECORD TIME
1000 MSEC

DELAY TIME
0 MSEC

STACK COUNT
1

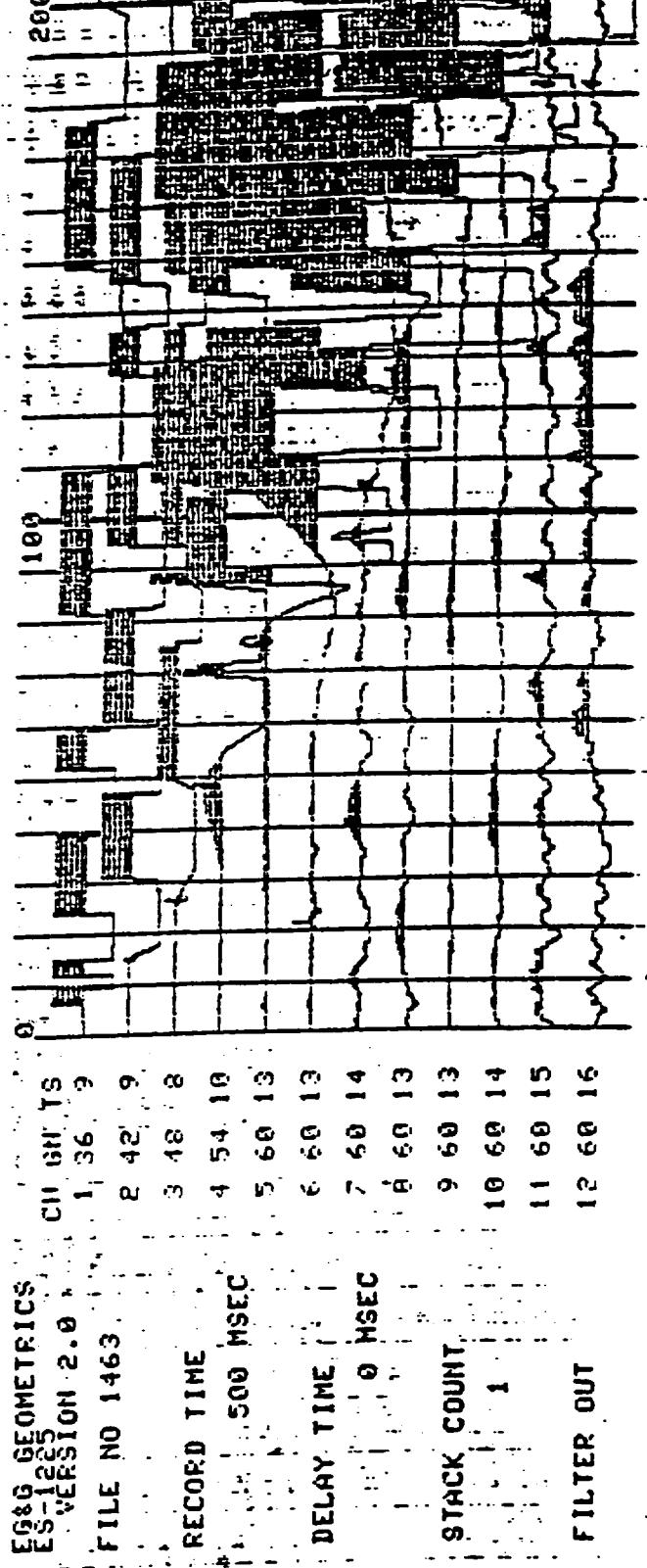
FILTER OUT

SP-14 LR DORNEY LANDFILL

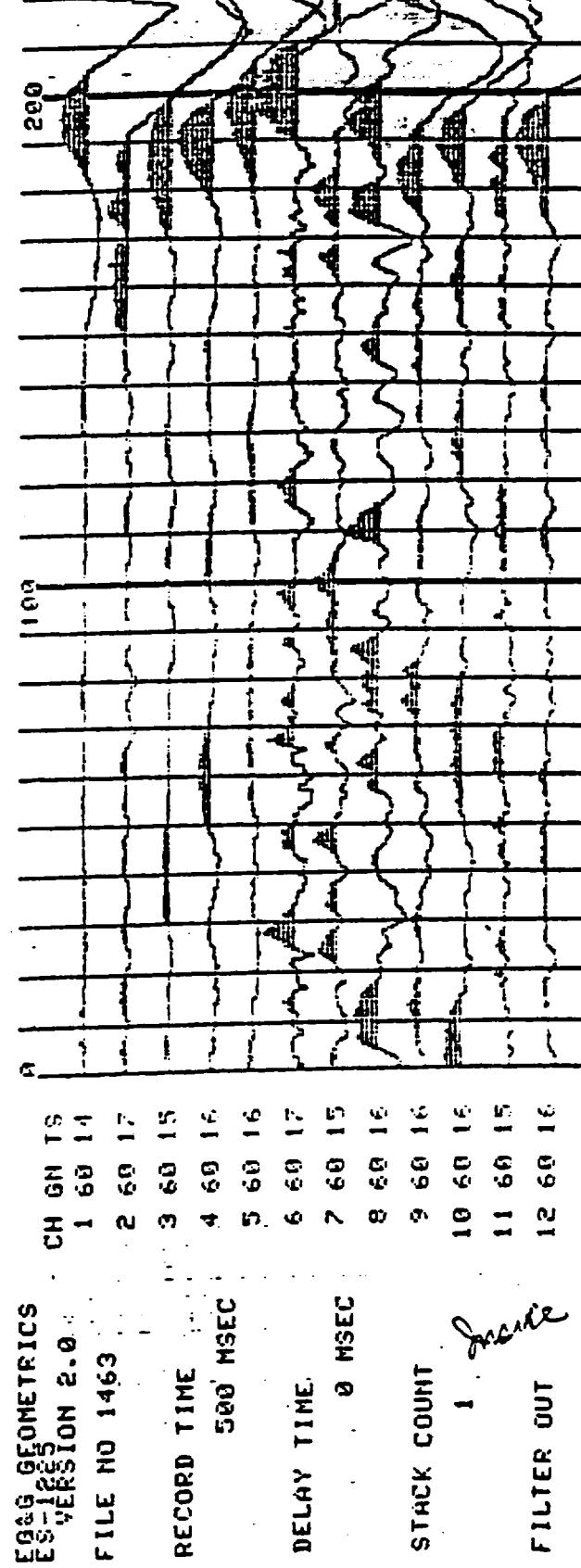
3:43 PM 1/8/82 *sample*

Changed rec length

AR301079



SP-14F DORNEY LANDFILL
3:03 PM 1/8/88 Sample



SP-14LF DORNEY LANDFILL
3:00 PM 1/8/88

AR301080

EGG GEOMETRICS

EST-1225
VERSION 2.0
FILE NO 1463

RECORD TIME 500 MSEC

DELAY TIME 500 MSEC

STACK COUNT 1

FILTER OUT 1

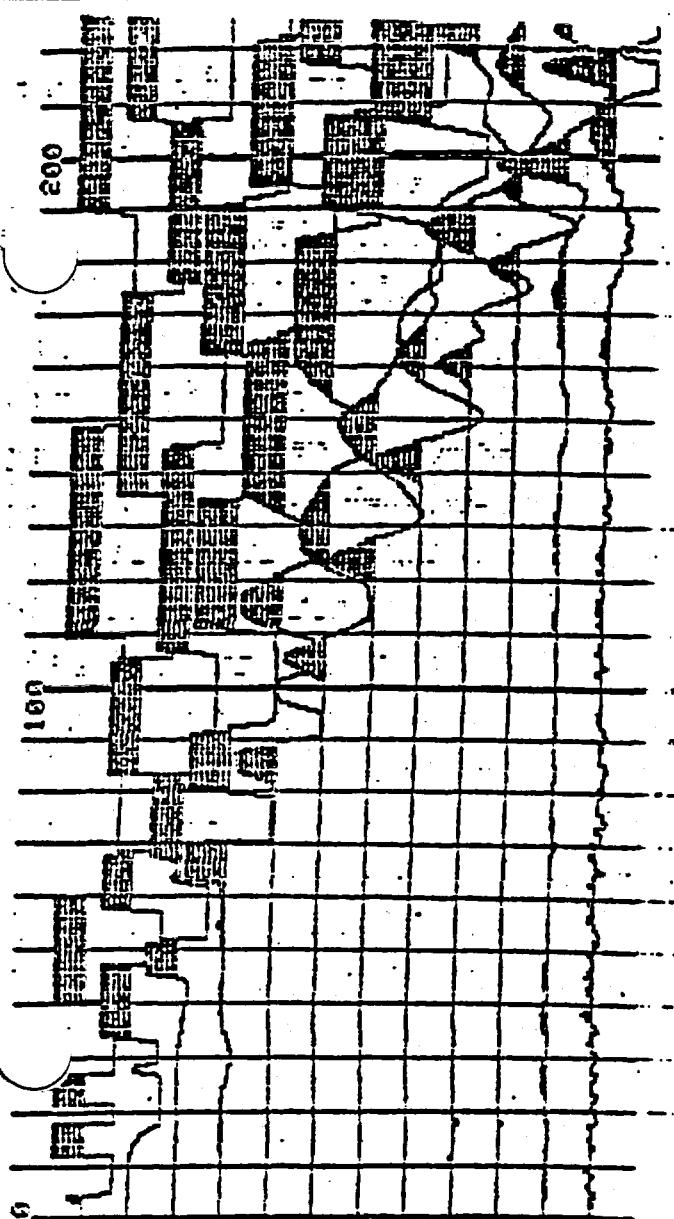
Profile

SP-15A

DORNEY LANDFILL

56 PM

1/8/88



EGG GEOMETRICS

EST-1225
VERSION 2.0
FILE NO 1463

RECORD TIME 1000 MSEC

DELAY TIME 0 MSEC

STACK COUNT 1

FILTER OUT 1

Profile
SP-15 LF DORNEY LANDFILL
2:52 PM 1/8/88

AR301081

E&G GEOMETRICS

EST-1225 VERSION 2.0
FILE NO 1463

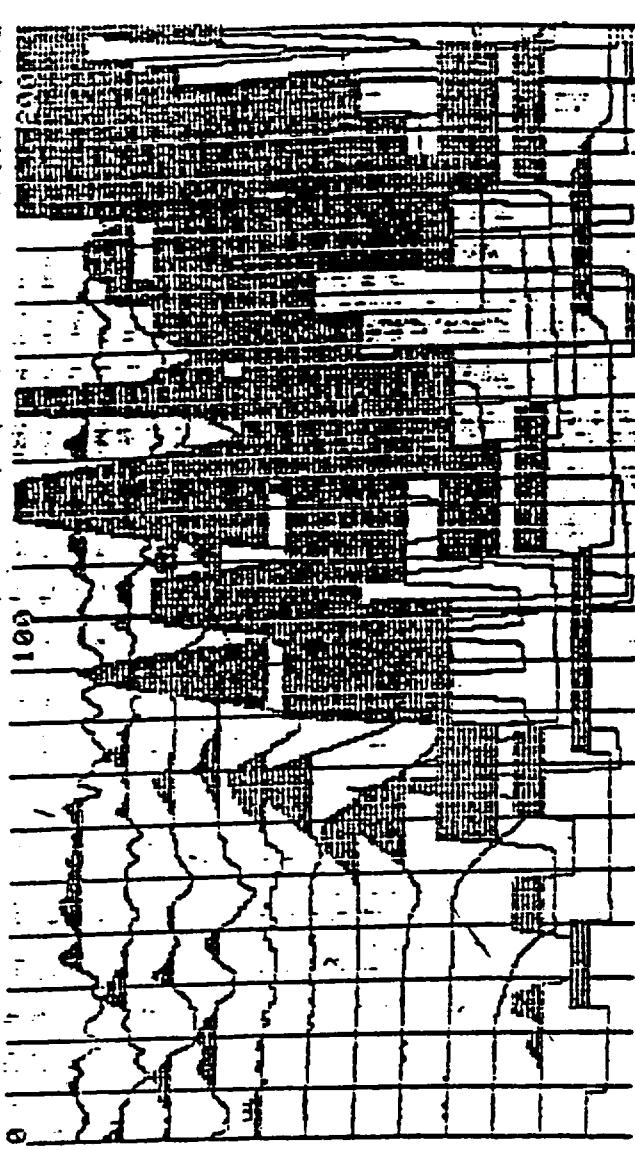
RECORD TIME 500 MSEC
DELAY TIME 0 MSEC
STACK COUNT 1

FILTER OUT 12 36 8
11 42 9
10 48 11

SP-15R

DORNEY LANDFILL

3:59PM 1/8/82 *Judie*



E&G GEOMETRICS
EST-1225 VERSION 2.0

FILE NO 1463

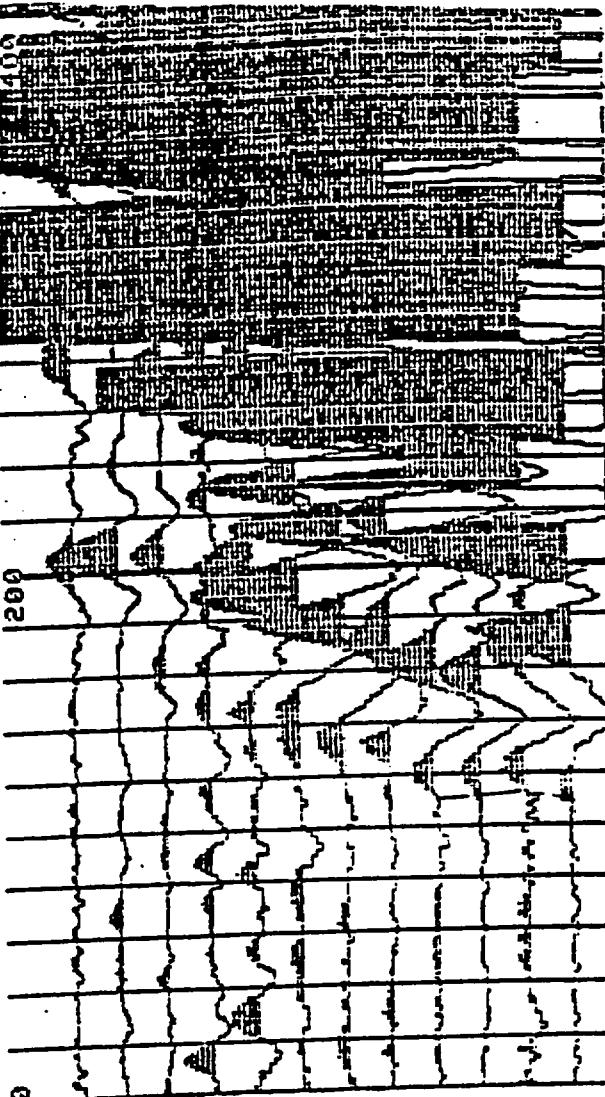
RECORD TIME 1000 MSEC
DELAY TIME 0 MSEC

STACK COUNT 1

FILTER OUT 10 60 16
11 60 18
12 60 17

SP-15 LR DORNEY LANDFILL
Judie

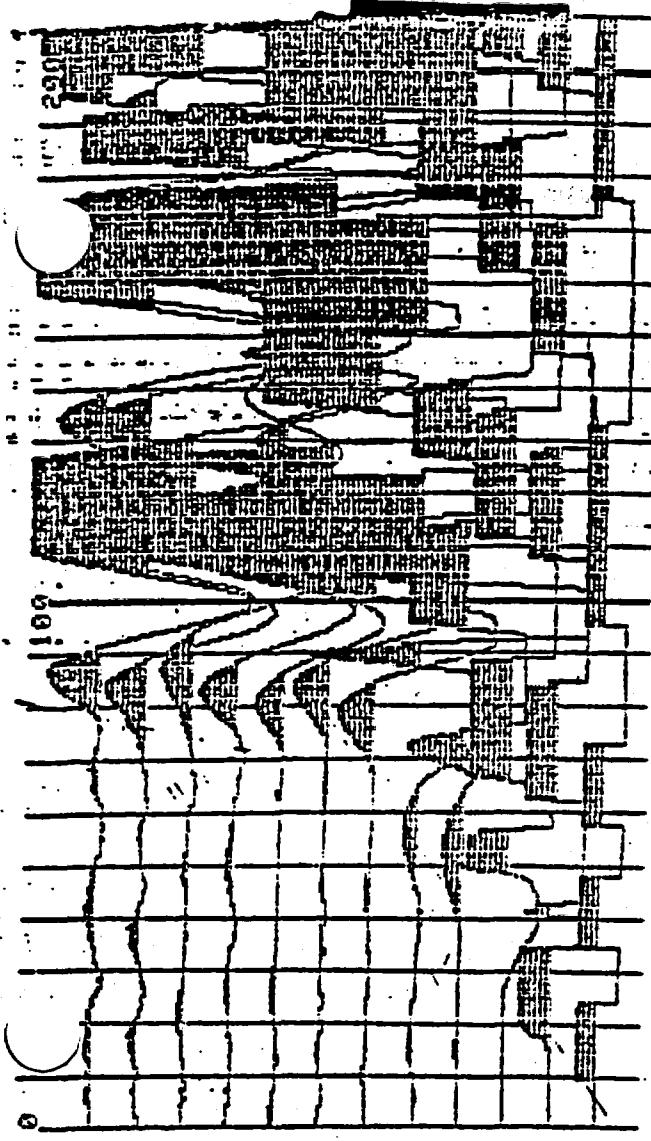
4:04 PM 1/8/82



AR301082

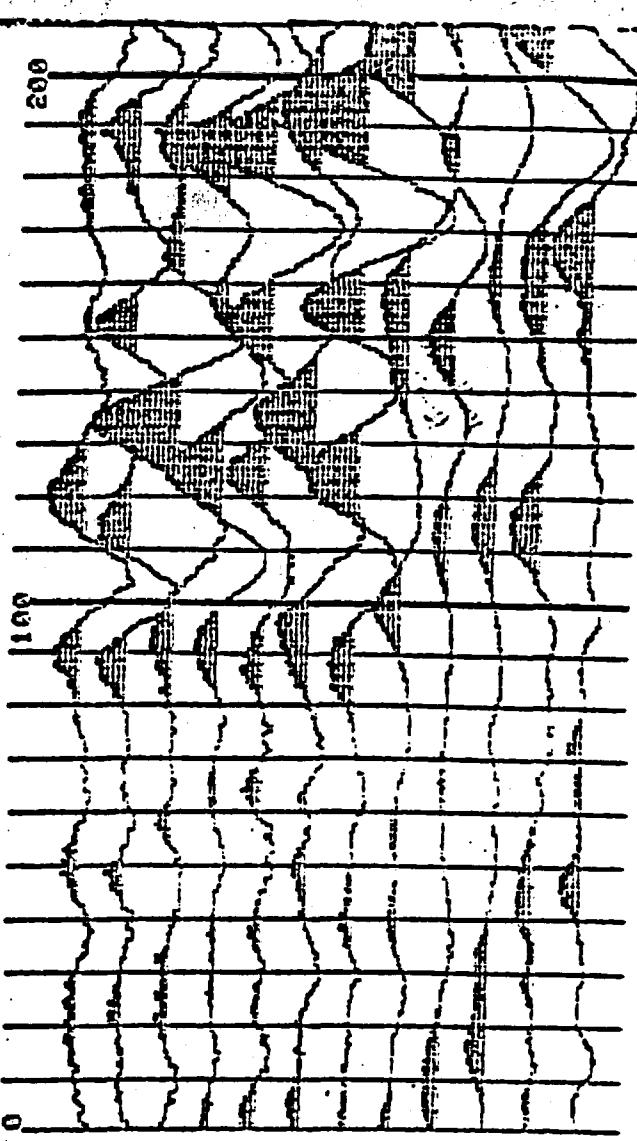
EGG GEOMETRICS
 EST-1255 VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1 *Dorrie*
 FILTER OUT

SP-16R DORNEY
 LAR-15516.00
 10:06 AM 1/11/58



EGG GEOMETRICS
 EST-1255 VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1 *Dorrie*
 FILTER OUT

SP-16L2 DORNEY LAR-15516.00
 10:17 AM 1/11/58



AR301083

Egg Geometrics

Version 2.0

File No 1463

Record Time

500 msec

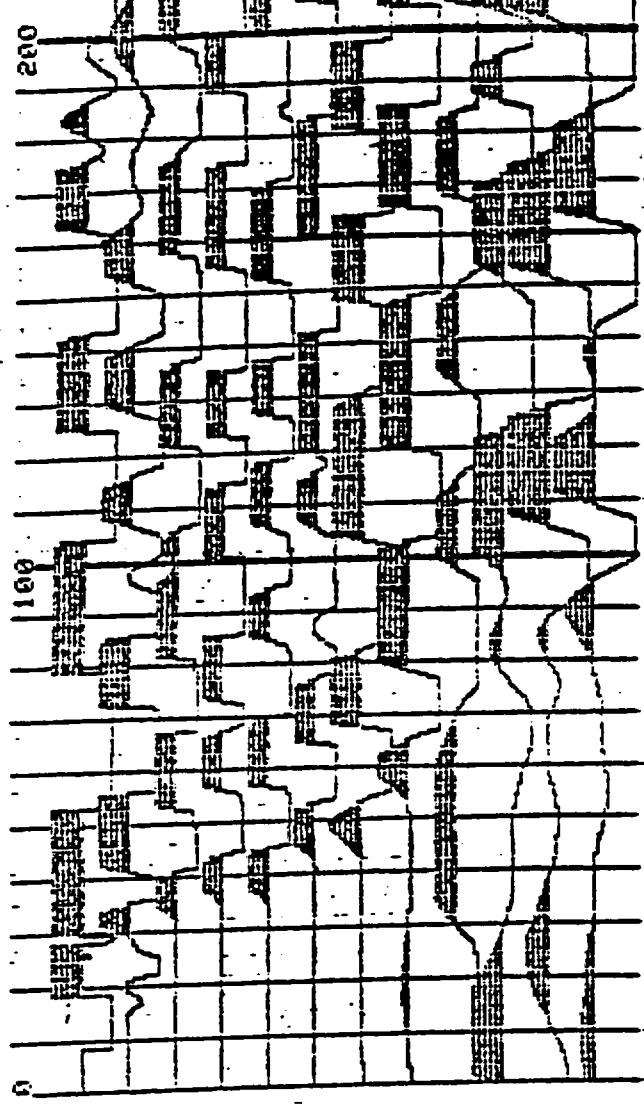
Delay Time

0 msec

Stack Count

1 *desire*

Filter Out



SP-1G

DORNEY LANDFILL

9:59AM 1/11/88

Egg Geometrics

Version 2.0

File No 1463

Record Time

500 msec

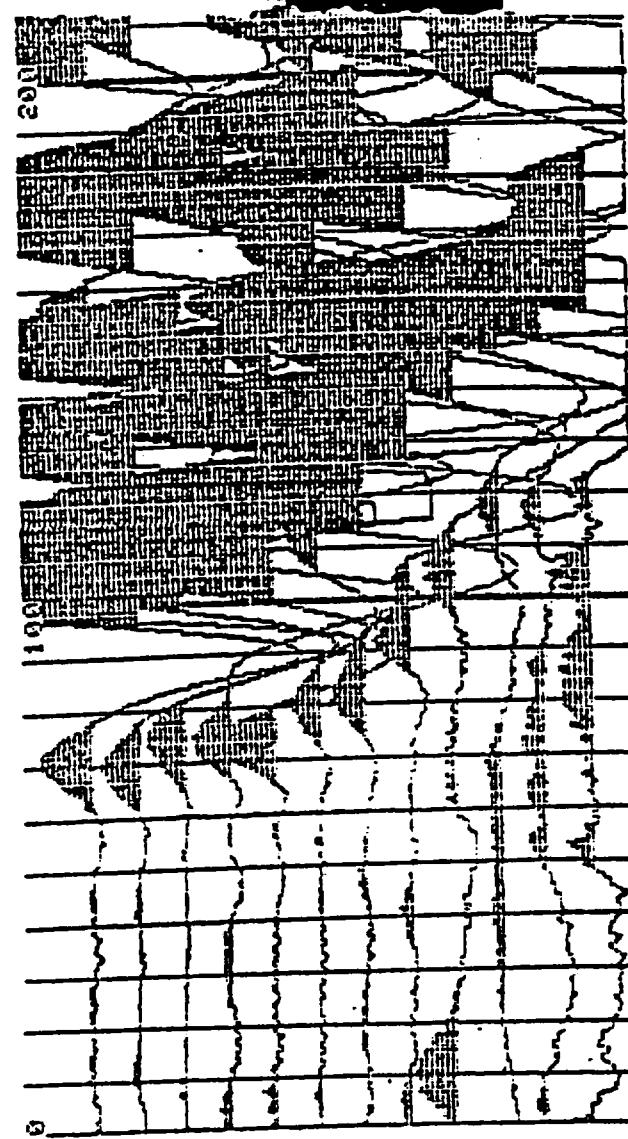
Delay Time

0 msec

Stack Count

2 *desire*

Filter Out



SP-1G

DORNEY LANDFILL

9:56AM 1/11/88 *desire*

AR301084

AR301085

EGG GEOMETRICS
EST VERSION 2.0
FILE NO 1463

RECORD TIME : 598 MSEC
DELAY TIME : 0 MSEC

STACK COUNT : 1

FILTER OUT : 1

500

17LR

DORNE LINES

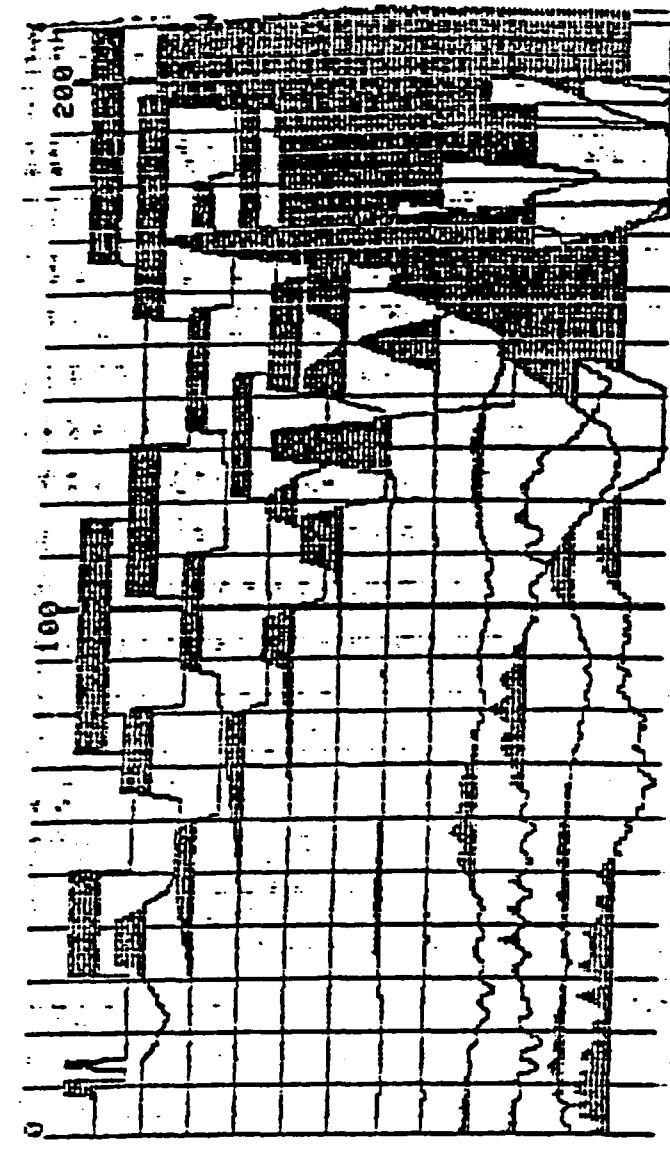
11/1/85

TIME : 0 MSEC
MSEC : 9 16
9 15
9 16
5 69 13
6 60 3
7 60 16
8 60 10
9 54 19
10 49 19
11 42 8
12 36 8

STACK COUNT : 1

LANDFILE : Inside

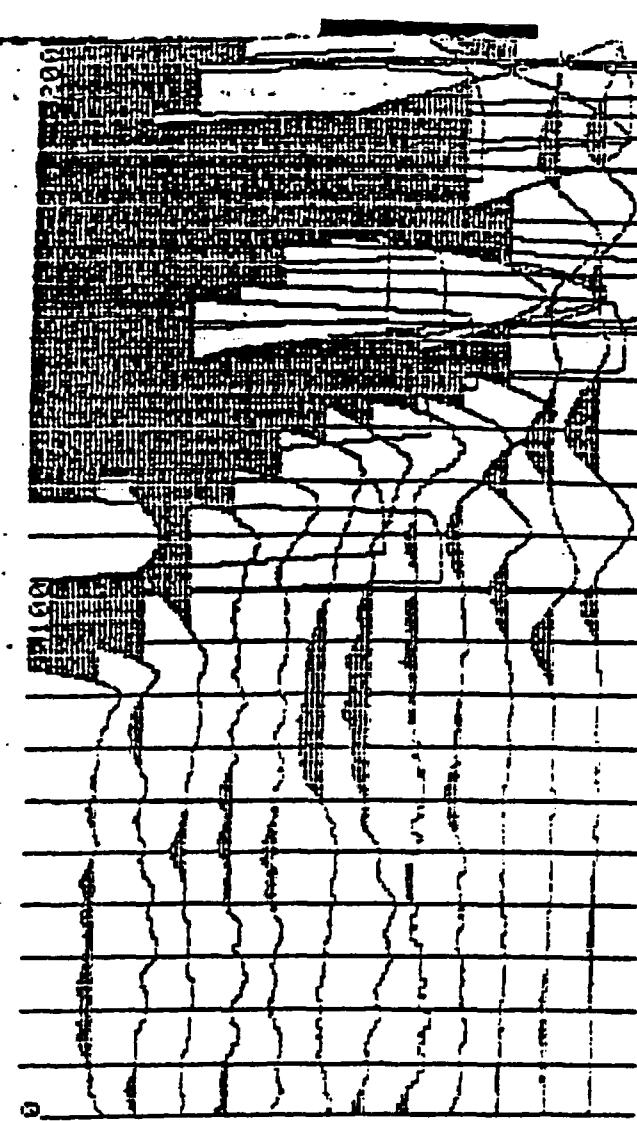
FILTER OUT : 1



E&G GEOMETRICS
 ES-1225
 VERSION 2.0
 FILE NO. 1463
 RECORD TIME 0 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER OUT

Dorrie

SP-17 LF DORNEY LANDFILL
 10:33 AM - 1/11/03



E&G GEOMETRICS
 ES-1225
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 0 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER OUT

Dorrie

SP-17 LF DORNEY LANDFILL
 10:36 AM - 1/11/03

AR301086

EGG GEOMETRICS
VERSION 2.0
FILE NO 1463
RECORD TIME 3 60 17
500 MSEC 5 60 16
DELAY TIME 6 60 19
0 MSEC 7 60 9
STACK COUNT 8 60 9
9 54 8
10 48 9
11 42 9
12 36 8

Dorsey
DORNEY
LANDFILL
10:58 AM 1/11/89

EGG GEOMETRICS
VERSION 2.0
FILE NO 1463
RECORD TIME 3 60 17
500 MSEC 4 60 16
DELAY TIME 5 60 18
0 MSEC 6 60 19
STACK COUNT 7 60 18
8 60 19
9 60 17
10 60 18
11 60 18
12 60 17

GP-18 LR DORNEY LANDFILL
11:00 AM 1/11/89

AR301087

EG&G GEOMETRICS

ES-1285 VERSION 2.0
FILE NO 1463

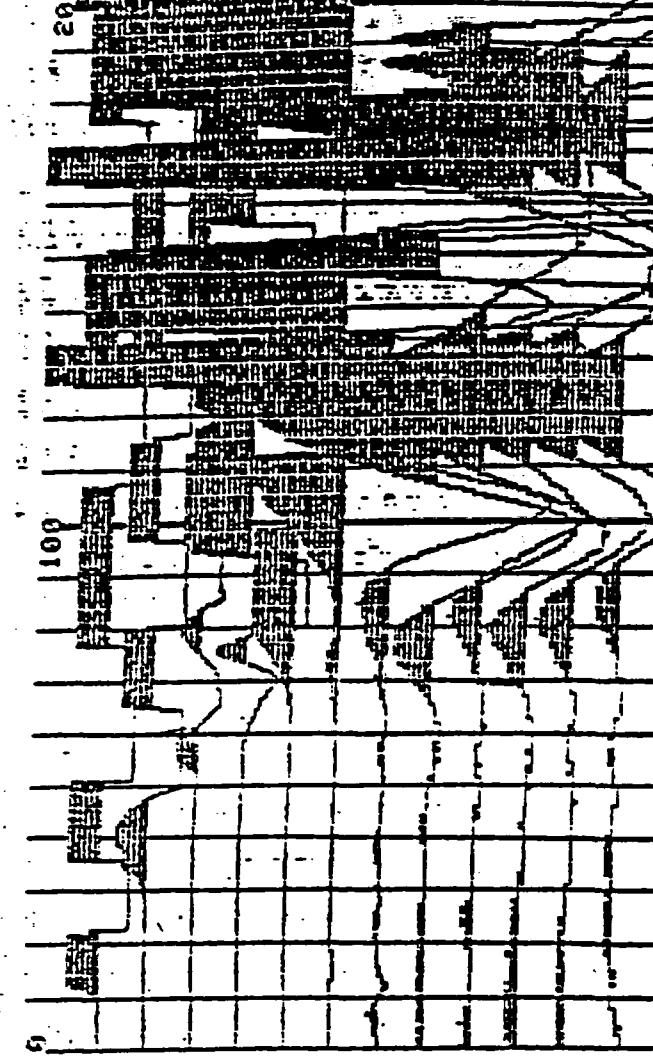
RECORD TIME

500 MSEC
1 36 9
2 42 9
3 48 8
4 54 11
5 60 10
6 66 9
7 60 15
8 60 17
9 60 18

DELAY TIME

0 MSEC
1 60 18
2 60 18
3 60 18
4 60 18
5 60 18
6 60 18
7 60 18
8 60 18
9 60 18

FILTER OUT



SP-18 F DORNEY LANDFILL
10:55 AM 1/11/88 *for site*

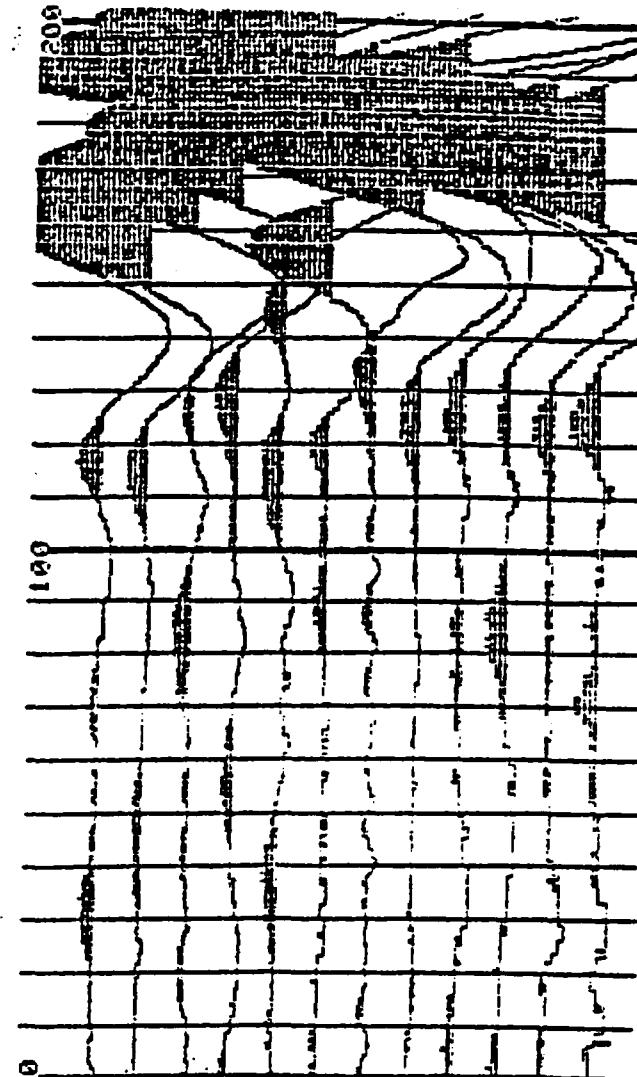
EG&G GEOMETRICS

ES-1285 VERSION 2.0
FILE NO 1463

RECORD TIME

500 MSEC
1 60 15
2 60 15
3 60 16
4 60 15
5 60 17
6 60 18
7 60 16
8 60 17
9 60 18

DELAY TIME

0 MSEC
1 60 18
2 60 18
3 60 18
4 60 18
5 60 18
6 60 18
7 60 19
8 60 19Stack Count
1
Filter Out
for site

SP-18 LF DORNEY LANDFILL
10:53 AM 1/11/88

AR301088

EG&G GEOMETRICS

ES-1255 VERSION 2.0

FILE NO 1463

RECORD TIME

500 MSEC

DELAY TIME

0 MSEC

STACK COUNT

9

FILTER OUT

12

CH GN TS

1 60 16

2 60 13

3 60 12

4 60 12

5 60 11

6 60 8

7 60 6

8 60 3

9 54 6

10 48 8

11 42 7

12 36 8

CH GN TS

1 60 20

2 60 19

3 60 19

4 60 19

5 60 19

6 60 18

7 60 18

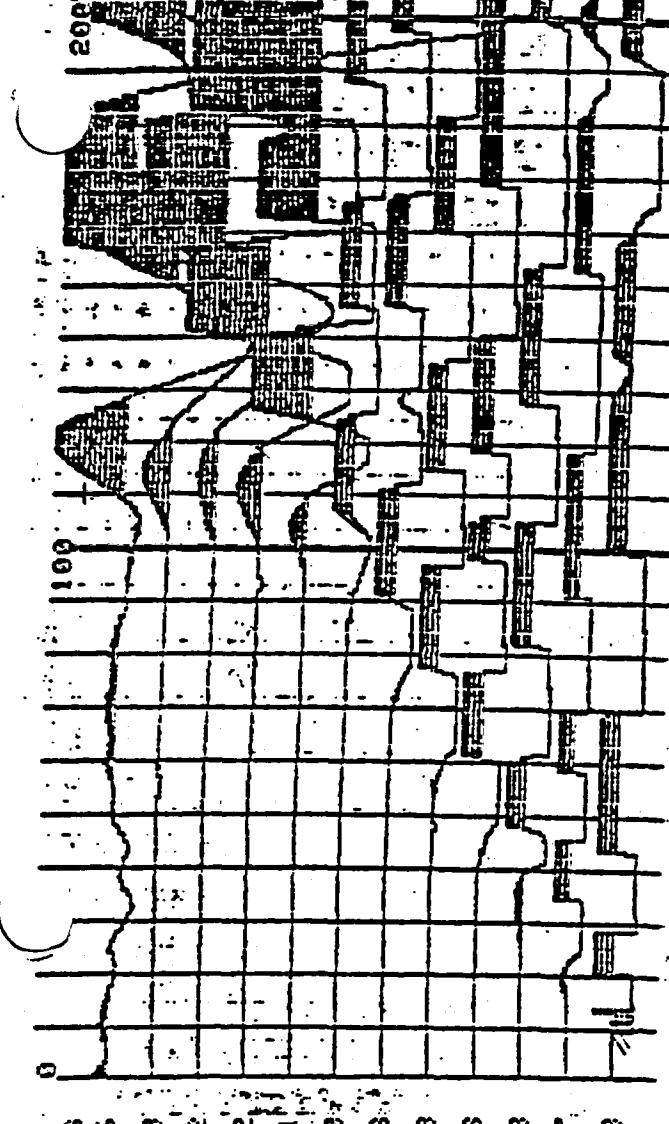
8 60 16

9 60 15

10 60 16

11 60 14

12 60 12



Land fill Sp 19 R Jessie

EG&G GEOMETRICS

ES-1255 VERSION 2.0

FILE NO 1463

RECORD TIME

2000 MSEC

DELAY TIME

0 MSEC

STACK COUNT

1

FILTER OUT

1

CH GN TS

1 60 20

2 60 19

3 60 19

4 60 19

5 60 19

6 60 18

7 60 18

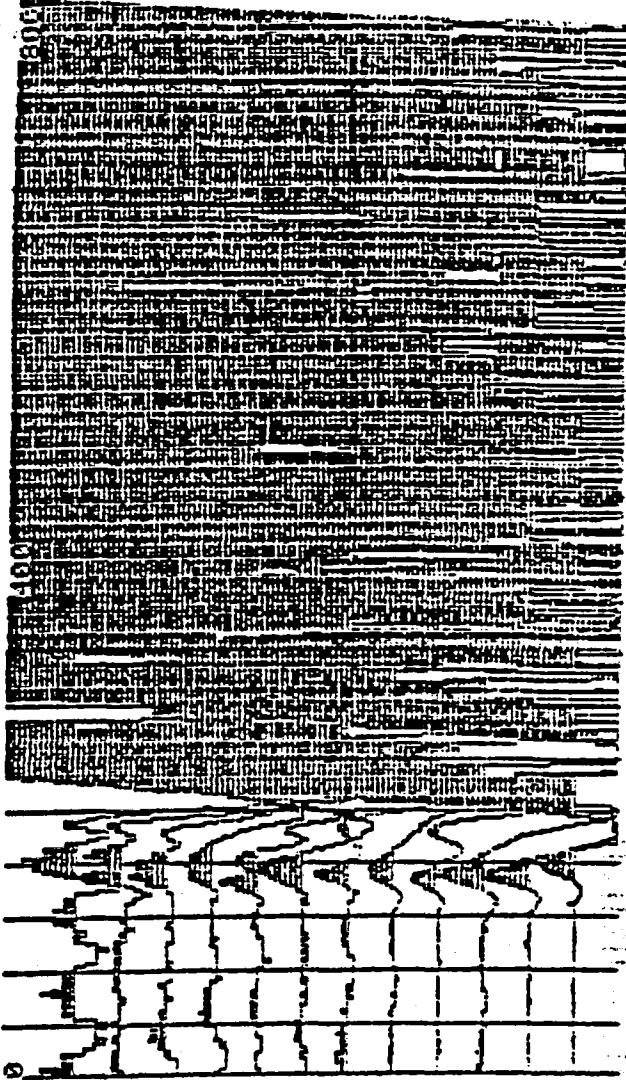
8 60 16

9 60 15

10 60 16

11 60 14

12 60 12

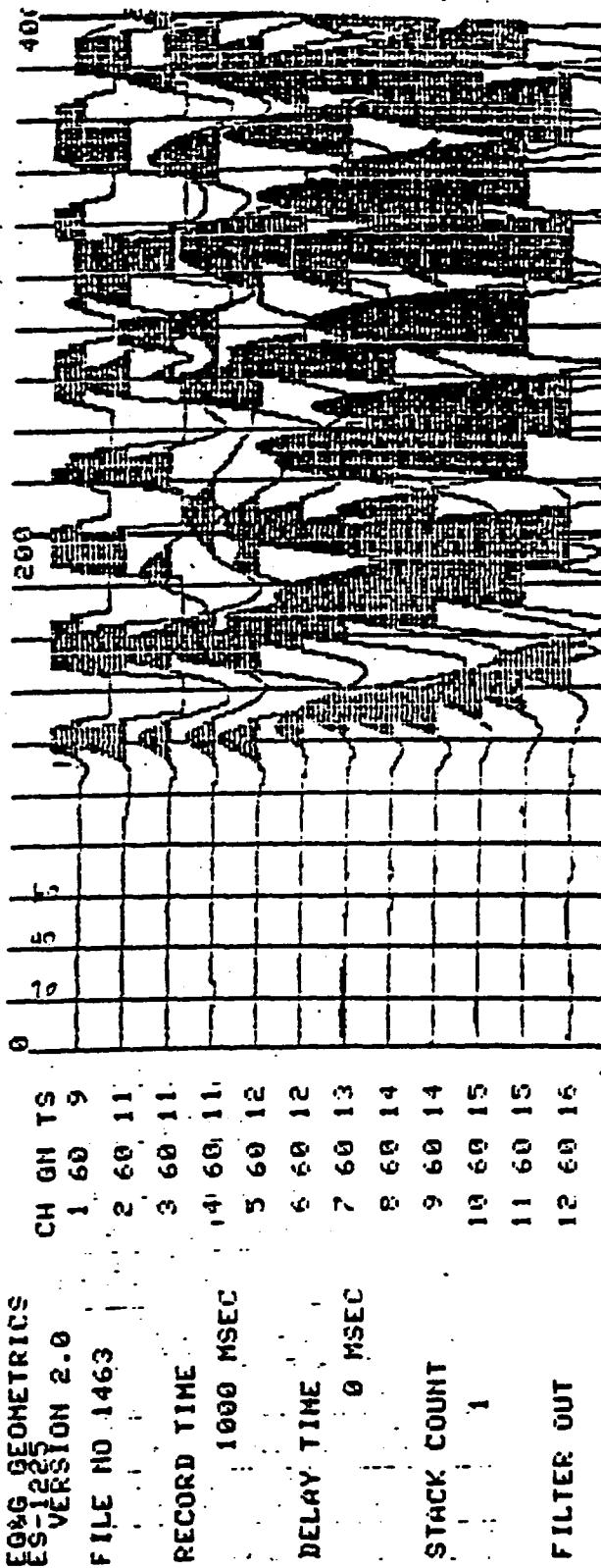
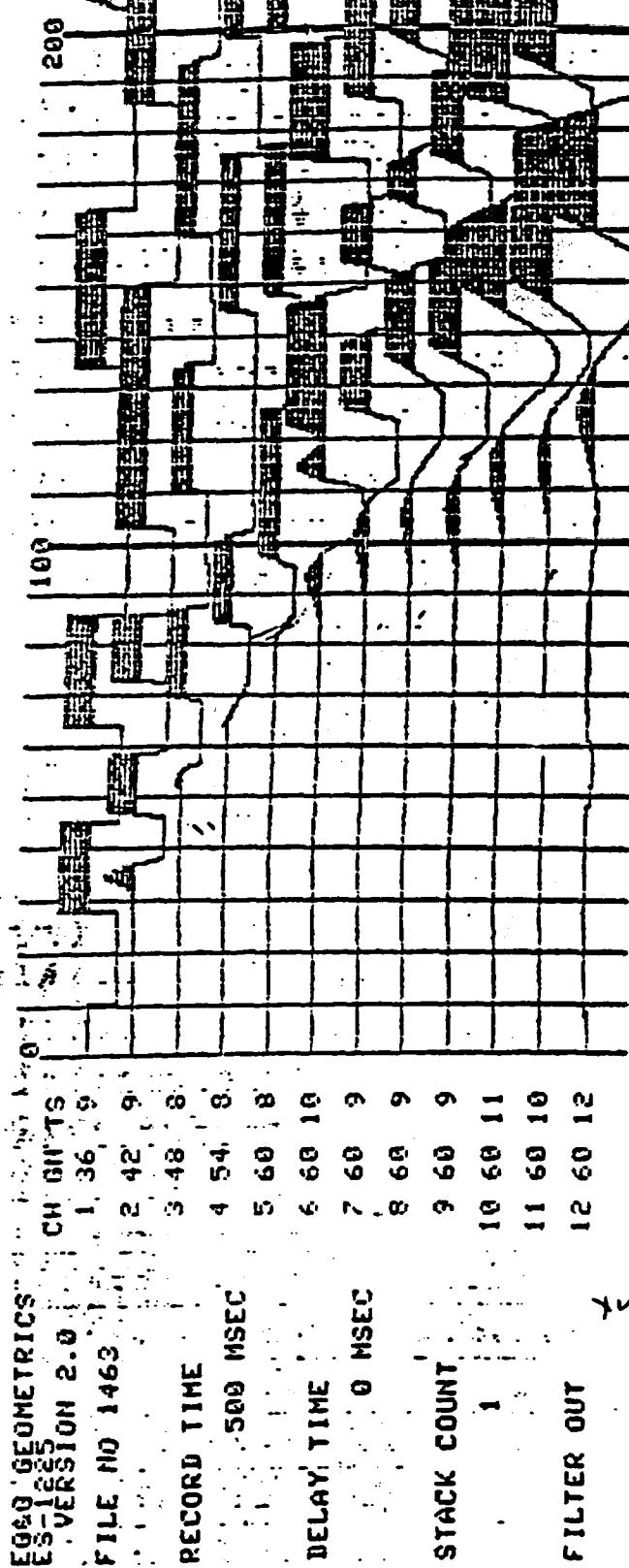


Land fill Sp 19

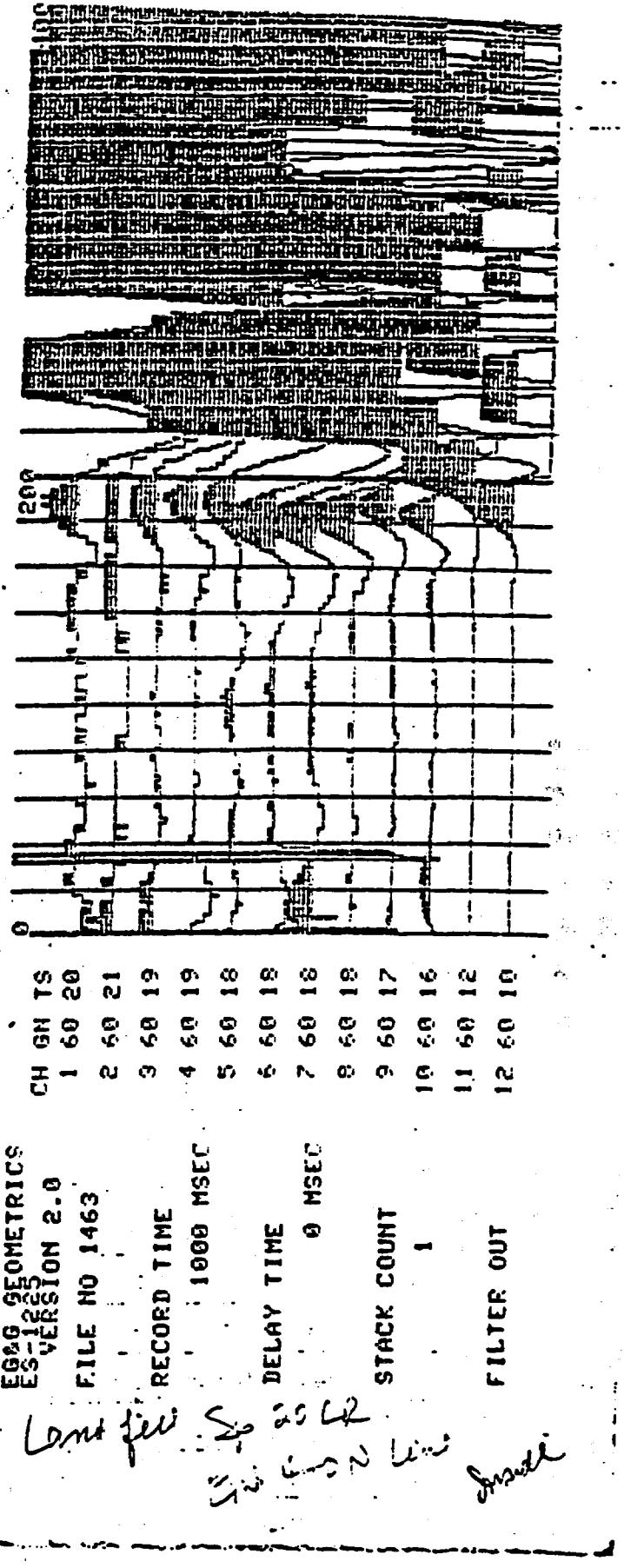
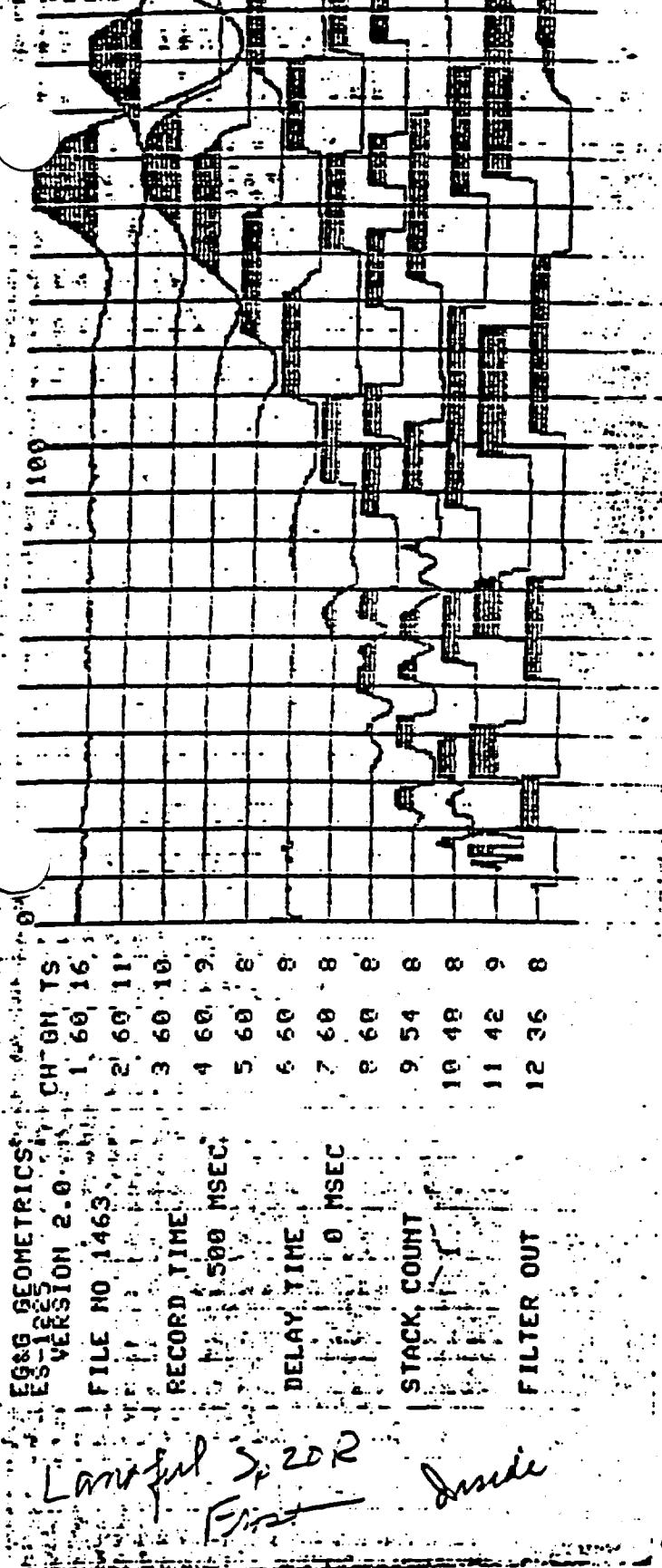
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N01
12-3-15

Jessie

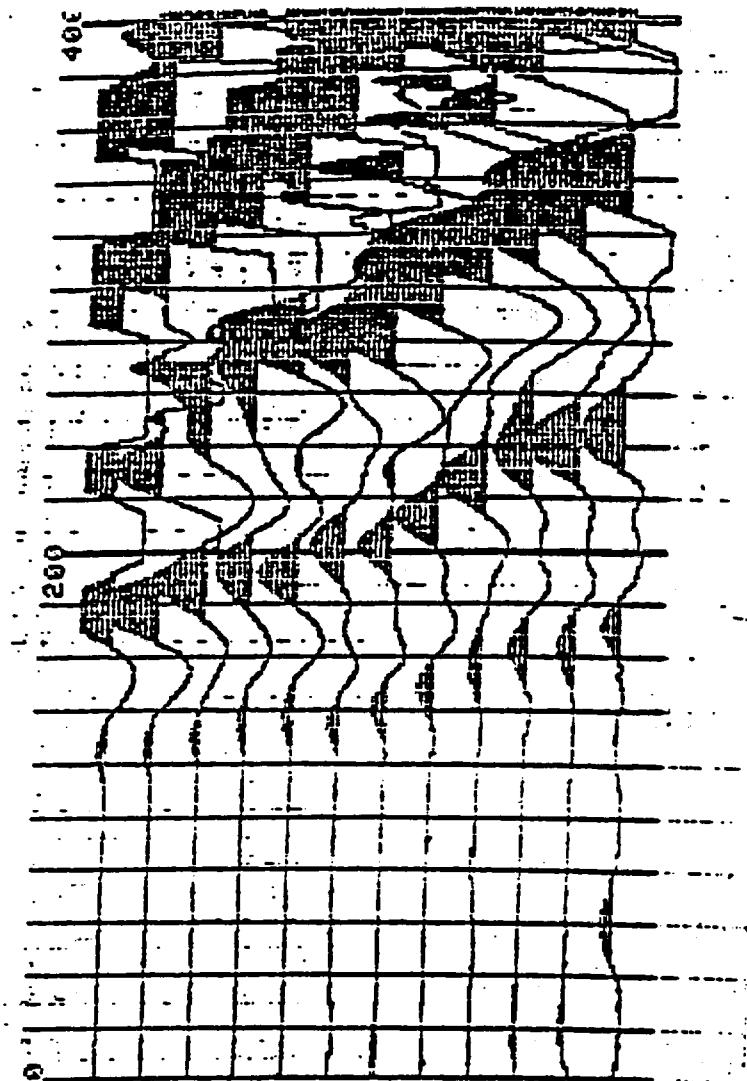
AR301089



AR301090

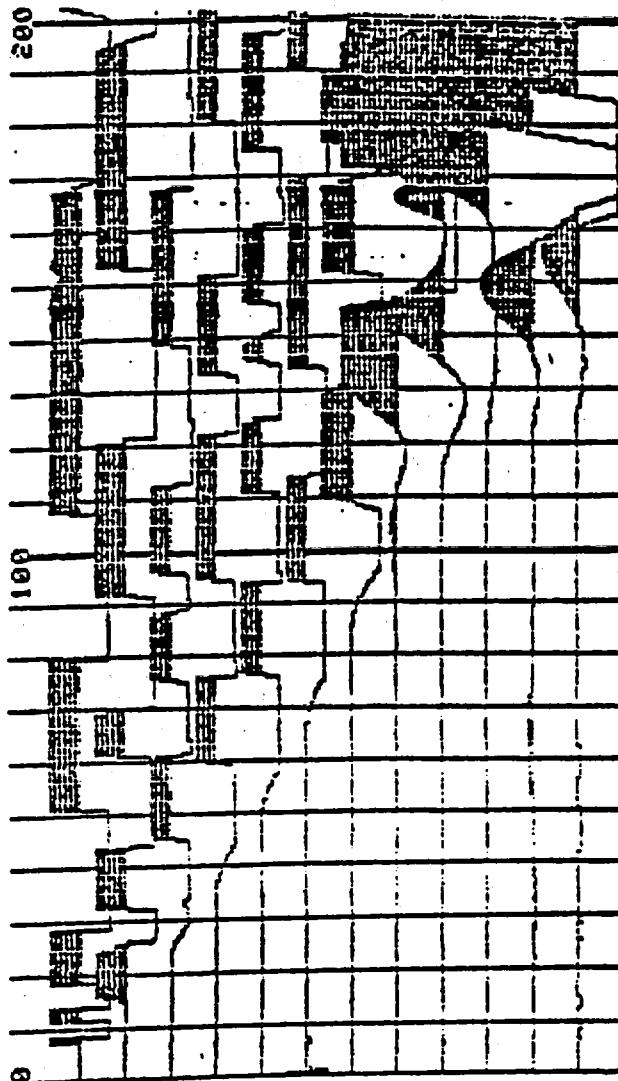


AR301091



EGG GEOMETRICS
 ES-1225
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 1000 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER OUT

Sp 20 LF Landfall inside



EGG GEOMETRICS
 ES-1225
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 1000 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER OUT

Sp 20 LF Landfall inside

AR301092

EGTB GEOMETRICS
EST-125 VERSION 2.0

FILE NO 1463 CH 01 TS 1 60 20

RECORD TIME 1 2 60 19

3 60 19

4 60 17

5 60 18

6 60 18

7 60 18

8 60 18

9 60 18

10 60 15

11 60 15

12 60 17

Stack Count *Inside*

Filter Out

Landfill SP-21 L2

EGTB GEOMETRICS

EST-125 VERSION 2.0

FILE NO 1463

CH 01 TS 1 60 16

2 60 15

3 60 14

4 60 12

5 60 10

6 60 9

7 60 9

8 60 8

9 54 8

10 49 8

11 42 9

12 36 8

Inside

21

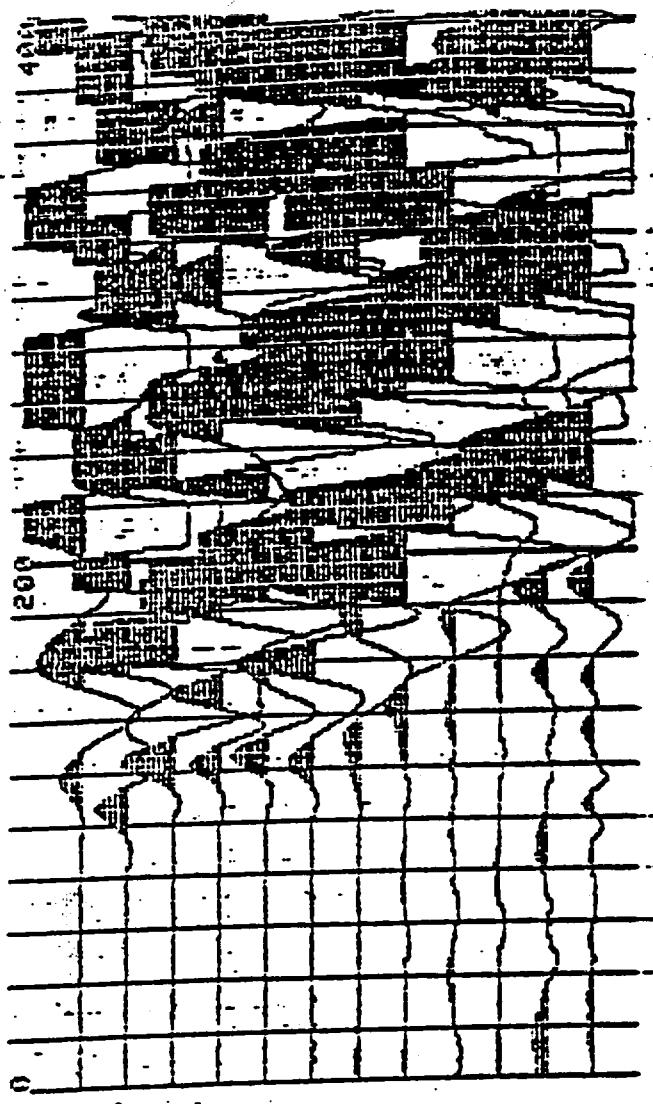
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21

21

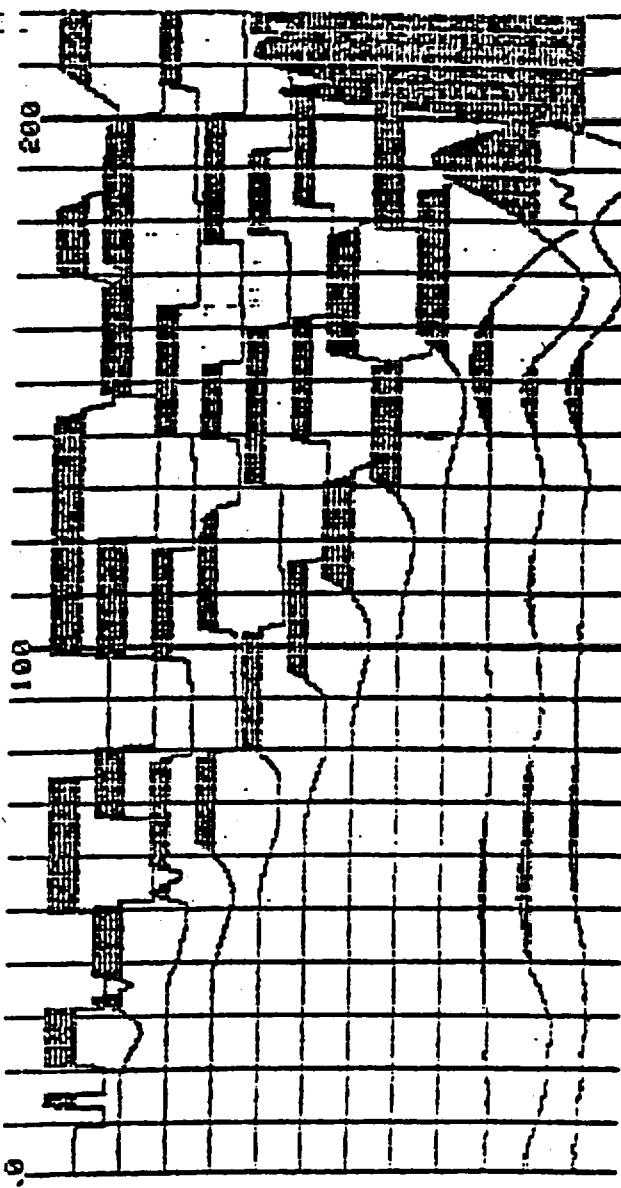
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ARSU1093



EG&G GEOMETRICS
 ES-125
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 1000 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1
 FILTER OUT

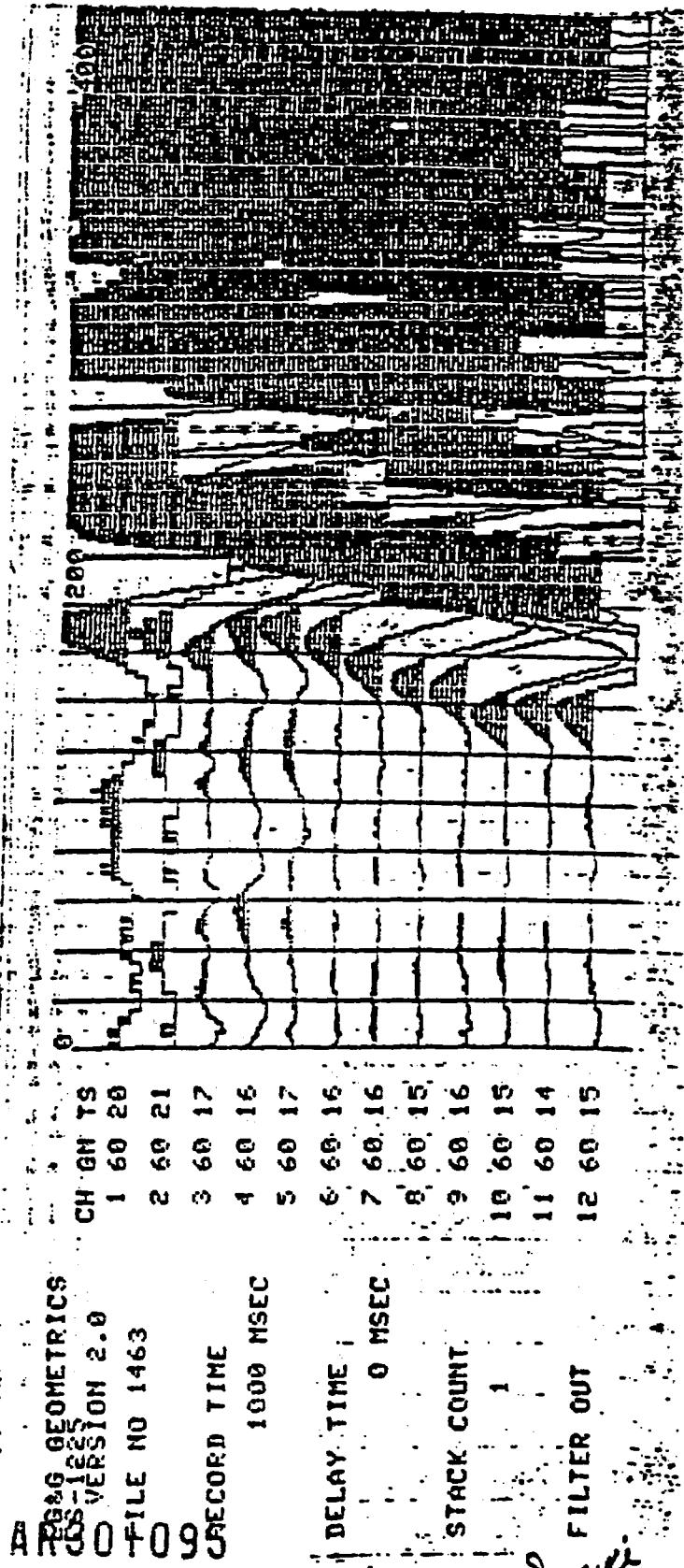
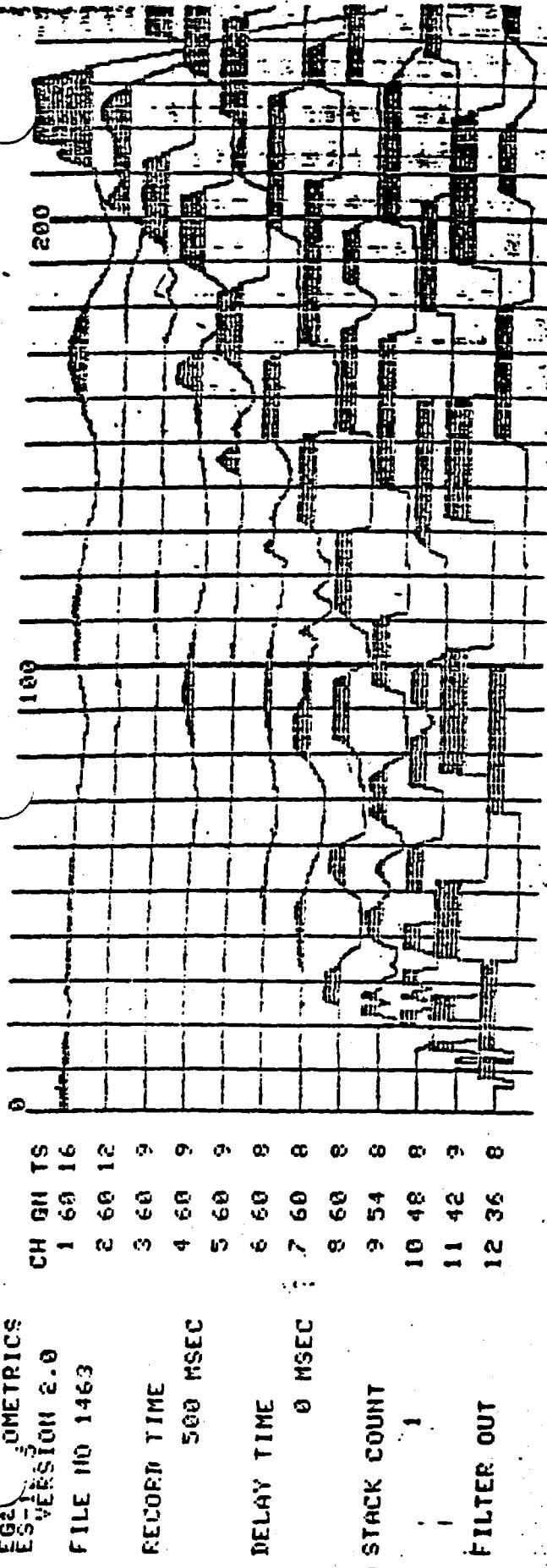
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 Left side: "6+4 field Sp 21 L"
 Middle: "Inside"
 Right side: "G+7G E"
 Bottom right: "6+G ZN"



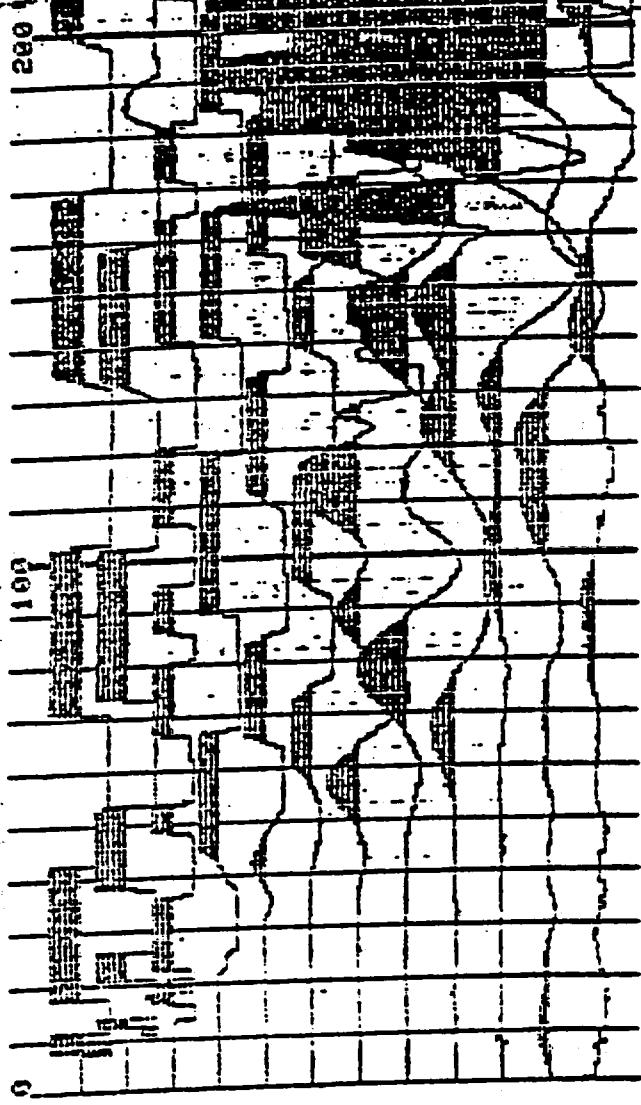
EG&G GEOMETRICS
 ES-125
 VERSION 2.0
 FILE NO 1463
 RECORD TIME 500 MSEC
 DELAY TIME 0 MSEC
 STACK COUNT 1

[Handwritten note: "J" above the first trace]

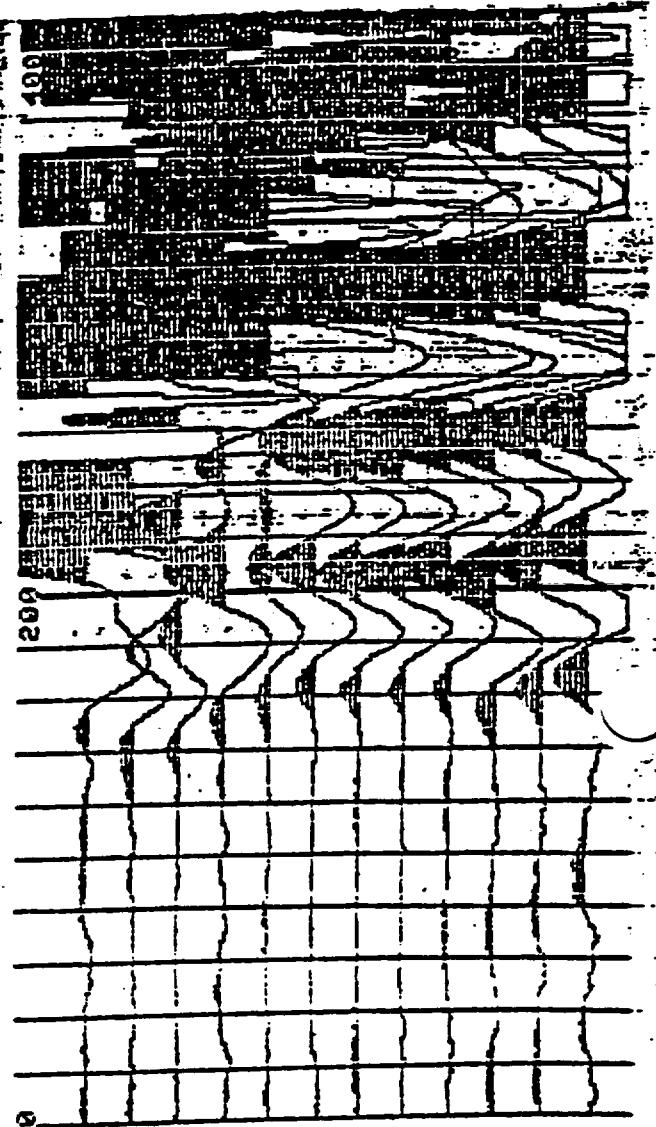
AR301094



E&G GEOMETRICS
ES-125
VERSION 2.0
FILE NO 1463
RECORD TIME
500 MSEC
DELAY TIME
0 MSEC
STACK COUNT
1
FILTER OUT



E&G GEOMETRICS
ES-125
VERSION 2.0
FILE NO 1463
RECORD TIME
1000 MSEC
DELAY TIME
0 MSEC
STACK COUNT
1
FILTER OUT



Lam fill 22F
source

AR3D1096, 22 Lam fill 22F

source
1
12 60 16
11 60 15
10 60 15
9 60 16

EGG GEOMETRICS

ESG-1265
VERSION 2.0
FILE NO 1463
RECORD TIME 500 MSEC
DELAY TIME 0 MSEC

STACK COUNT

1 1
2 1
3 1
4 1
5 1
6 1
7 1
8 1
9 1
10 1
11 1
12 1

FILTER OUT

Sep 23 R Lanted

100

6

2

8

4

0

4

10

16

22

28

34

40

46

52

58

64

70

76

82

88

94

100

EGG GEOMETRICS
ESG-1265
VERSION 2.0

FILE NO 1463

RECORD TIME 1000 MSEC
DELAY TIME 0 MSEC

STACK COUNT
1 1
2 1
3 1
4 1
5 1
6 1
7 1
8 1
9 1
10 1
11 1
12 1

FILTER OUT

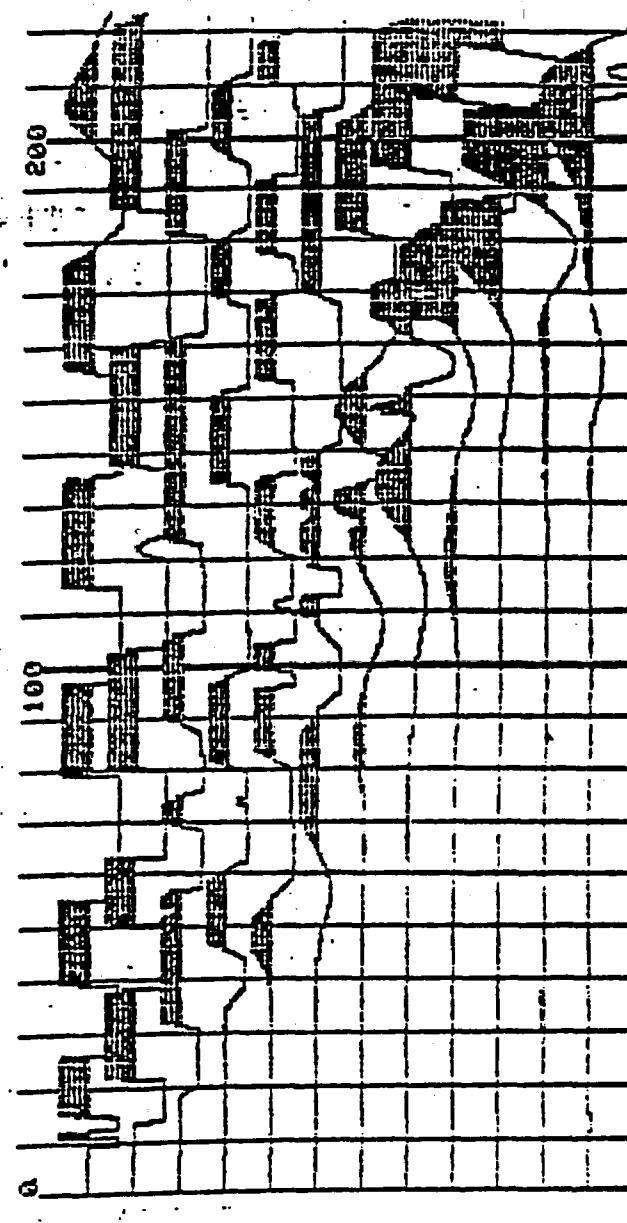
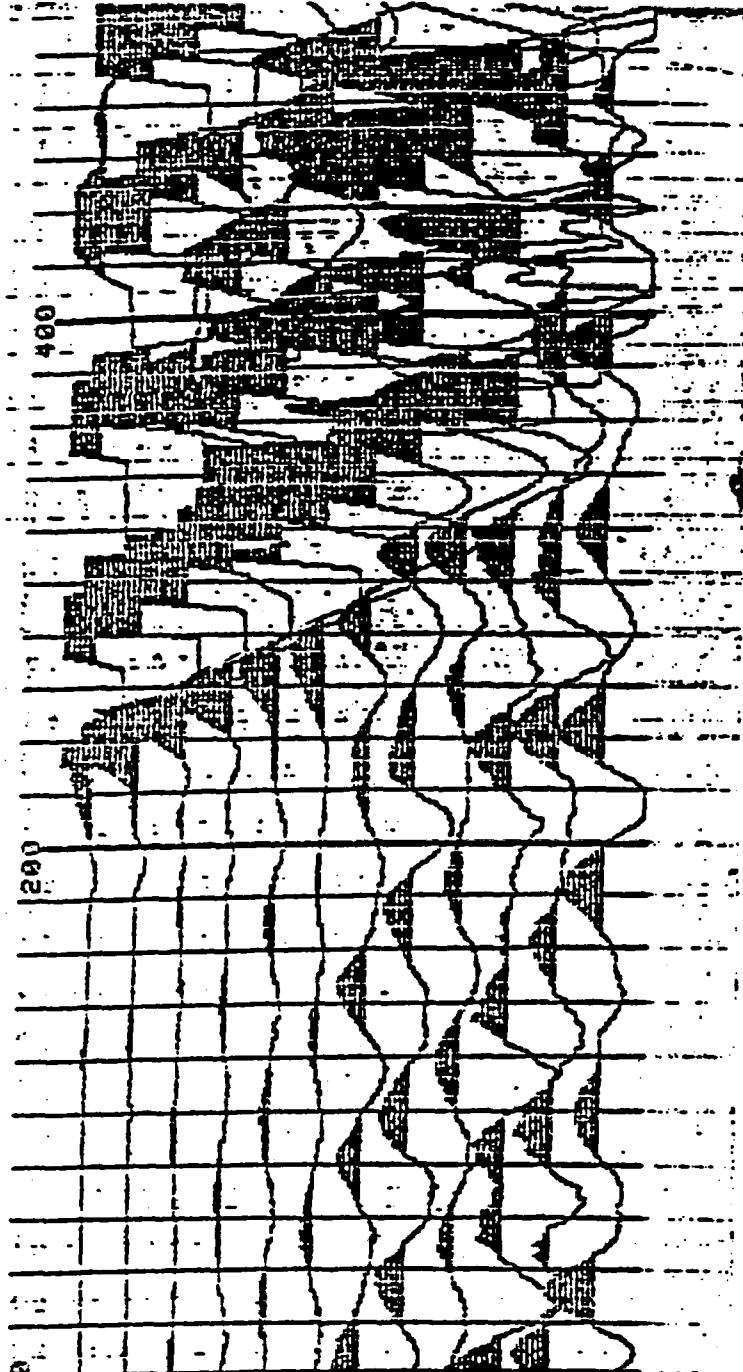
Egg Geometrics
Version 2.0
File No 14634

Record Time 1000 msec
Delay Time 0 msec

Stack Count 1 60 14
9 60 14
8 60 14

Filter Out 1 60 13
10 60 15
11 60 13
12 60 12

Run 3 Longfield LF



Egg Geometrics
Version 2.0
File No 14634

CH	GN	TS
1	36	9
2	42	9
3	48	8
4	54	8
5	60	8
6	60	8
7	60	9
8	69	10
9	60	11
10	60	11
11	60	12
12	60	12

Stack Count
Filter Out

Sb 2.3 f. Lamefield
Small

AR301098

BOREHOLE GEOPHYSICAL LOGS

AR301099

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**APPALACHIAN
COAL SURVEYS**

LOG HEADING
HOLE NO. MW - 2D
PAGE 1 OF 4

COMPANY	PROJECT	LOCATION		UNIT	61 OFFICE	Path
		COUNTY	STATE			
ICF/SRV	30527-012-00 HOLE NO. NV-20	Lohi	PA			
CLIENT REPRESENTATIVE	E. Brown	FT.	CASING DEPTH	101	FT.	LOGGING SPEED FT/MIN
DRILLED DEPTH	100	FT. ELEVATION	DIAMETER 4.0	IN. FACTOR	DRILLING FLUID	DRILLER
HOLE DIAMETER	8.0	IN. WATER LEVEL	50 FT.	WALL THICKNESS/IN.	AIR	PA DRILLING
RUN #	LOG	INTERVAL (DEPTH) FT.	RANGE	TIME CONSTANT	INTERPRETATION	RUNS
CALIPER	-	100	100 CPS	1 SEC NATURAL	COAL < 10% ASH	# RUN
NATURAL	0 - 95	100 CPS	2 SEC NATURAL		COAL > 10% ASH	(DEPTH) FT.
H.R. DENSITY	6 - 101	1k CPS	1 SEC Am 241	0.5 1a.	BONE / CARBONACEOUS SHALE > 50% ASH	FT.
Ø DENSITY	6 - 101	3k CPS	1 SEC Ro 226	12.0 in.	FIRECLAY / HOT SHALE	SUR -
NEUTRON	6 - 101	1k CPS	1 SEC Am-Ba	12.0 in.	LIMESTONE / OTHER CARBONATE	101
RESISTIVITY	-	-	J		SANDSTONE	10
SPONTANEOUS POTENTIAL	-	-	MV		SILTY SANDSTONE	20
TEMPERATURE	50 - 101	5 °F			SANDY SHALE / SILTSTONE	101
FLUID CONDUCTIVITY	50 - 101	50 U.M			GROUNDWATER INFLOW	10
SONIC	-	us/in			2.0 FT.	20
OTHER	-	-				

NOTES: DATUM IS TOP OF CASING

H. R. DENSITY CALIBRATION g/cc

AR301100

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APPALACHIAN COAL SURVEYS

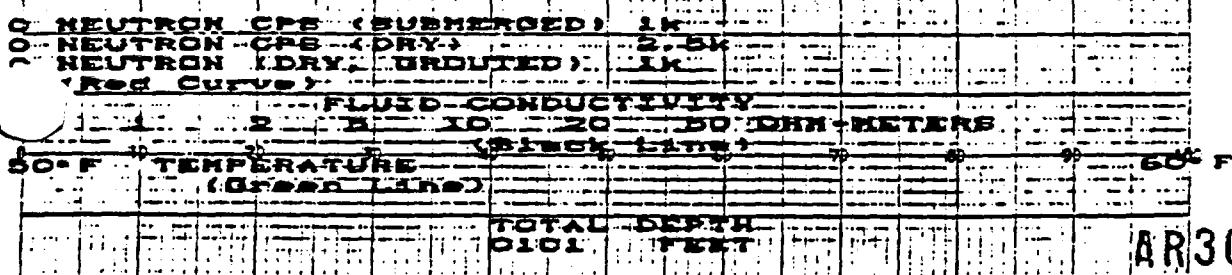
LOG HEADING
MOLE NO.
72W-2D
PAGE 2 OF 4

COMPANY SCF/SRY	LOCATION	UNIT	61 OFFICE	PAH
PROJECT 30327-012-00	HOLE NO. 72W-2D	OPERATOR	CBC	
CLIENT REPRESENTATIVE E. Brown	COUNTY Lawrence	STATE PA	DATE 13-APR-86	
DRILLED DEPTH 100 FT. ELEVATION	CASING DEPTH FT.	FT.	DRILLING FLUID AIR	
MOLE DIAMETER 6.0 IN. WATER LEVEL 8.0 FT.	DIAMETER 6.0 IN. FACTOR 302	IN.	DRILLING CO. PA DRILLING	DRILLER
WALL THICKNESS BYC				

0000

0050

0100



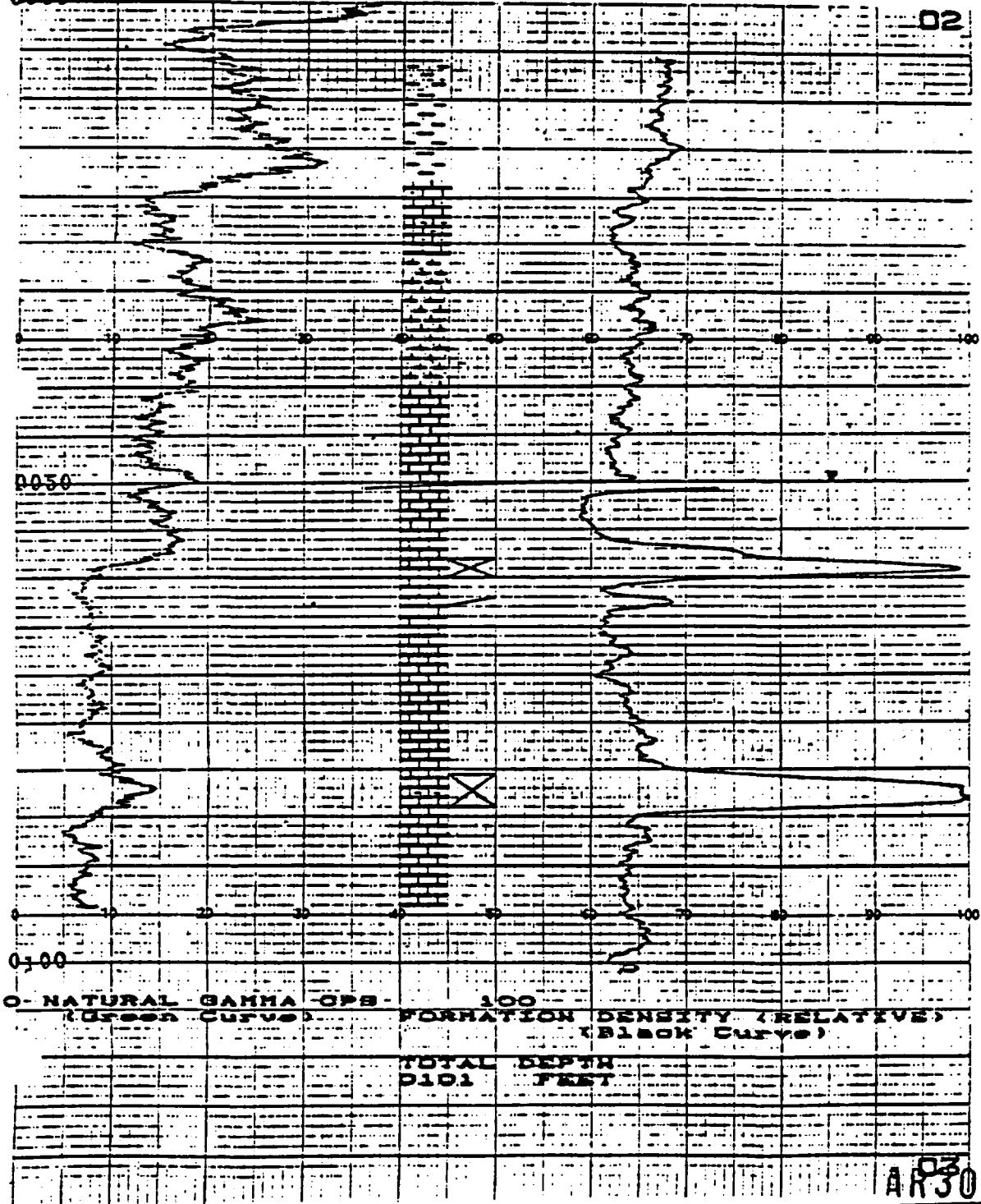
AR301101

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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
2SW - 2D
PAGE 3 OF 4

COMPANY ICP/SER	LOCATION	UNIT	61 OFFICE	PUB
PROJECT 30527-012-00	HOLE NO. 2W-2D		OPERATOR CRC	
CLIENT REPRESENTATIVE E. Brown	COUNTY Ligon	STATE PA	DATE 13-APR-88	
DRILLED DEPTH 100 FT. ELEVATION FT.	CASING DEPTH FT.	DIAMETER 6.0 IN.	DRILLING FLUID AIR	
HOLE DIAMETER 6.0 IN. WATER LEVEL 30 FT.	IN. FACTOR 101	WALL THICKNESS IN.	DRILLING CO. PA DRILLING	DRILLER

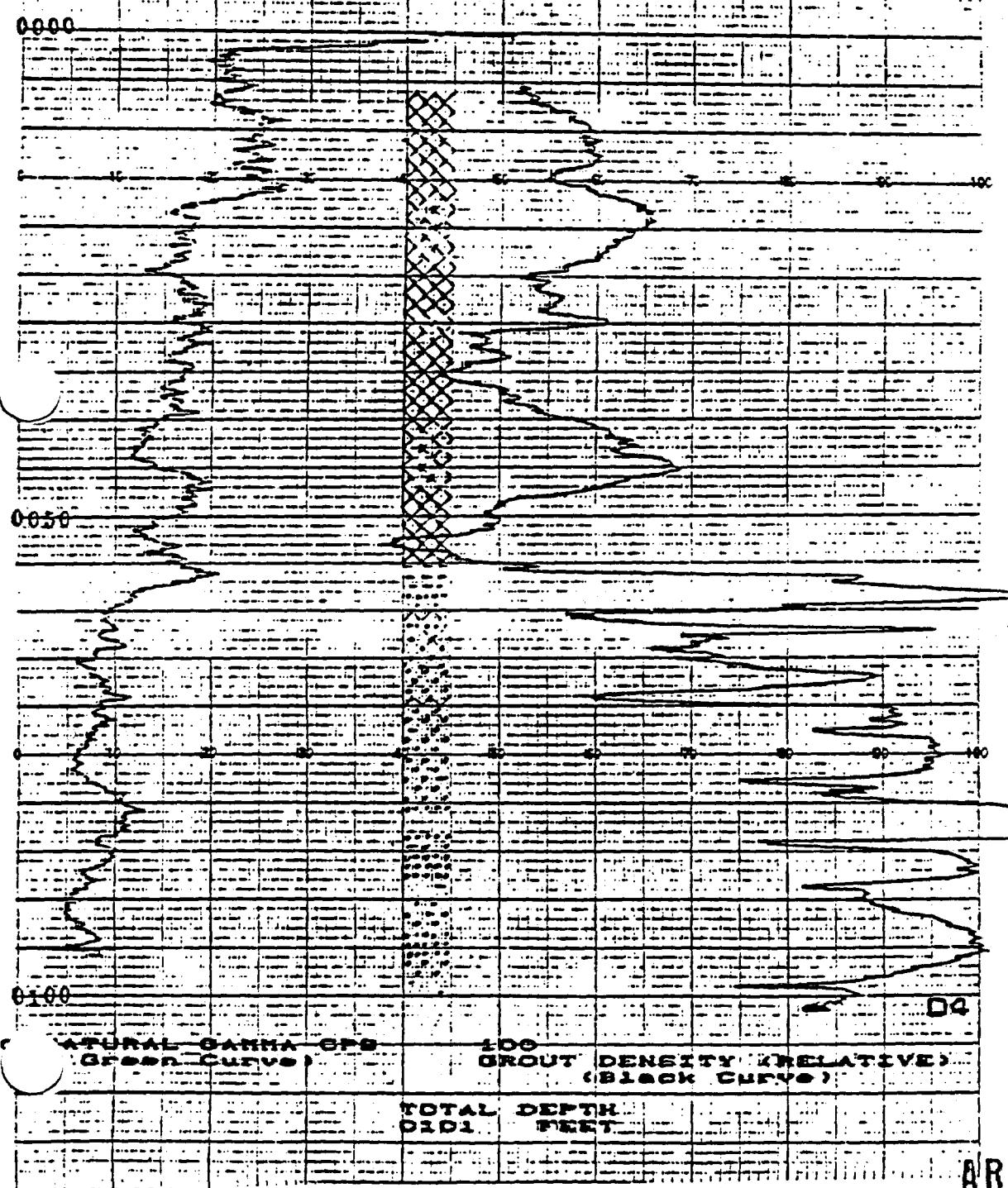


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LOG HEADING
MOLE NO.
PMW-2D
PAGE 4 OF 4

APPALACHIAN COAL SURVEYS

COMPANY ICP/SER	LOCATION	UNIT	61 OFFICE	PEN
PROJECT 30327-012-00 MOLE NO. PW-2D			OPERATOR CRC	
CLIENT REPRESENTATIVE E Brown	COUNTY LAMBERT	STATE PA	DATE 13-APR-88	
DRILLED DEPTH FT. ELEVATION 100	FT. CASING DEPTH	FT.	DRILLING FLUID AIR	
HOLE DIAMETER IN. 8.0	WATER LEVEL FT. 80	DIAMETER 4.0 IN. FACTOR 201	DRILLING CO. PA DRILLING	DRILLER
WALL THICKNESS BYC IN.				



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APPALACHIAN SURVEYS

LOG HEADINGS
HOLE NO.
NW - 3D
PAGE 1 OF 4

COMPANY ICF/SRW	LOCATION	UNIT	61 OFFICE CBC	Pub	
PROJECT 30327-012-HOLE NO. NW-3D		OPERATOR CBC			
CLIENT REPRESENTATIVE E. Brown	COUNTY Ligon	STATE PA	DATE 13-Apr-98		
DRILLED DEPTH 100 FT. ELEVATION	FT. CASING DEPTH	97 FT.	DRILLING FLUID AIR		
HOLE DIAMETER 8.0 IN. WATER LEVEL 44 FT.	DIAETER 4.0 IN. FACTOR	WALL THICKNESS 8VC IN.	DRILLING CUTTING DRILLER		
RUN #	LOG	INTERVAL (DEPTH) FT.	RANGE	TIME CONSTANT	RUNS
CALIPER	-	γ_{in}			
NATURAL	0 - 91	100 CPS	2 SEC	NATURAL	
1-2	γ	-			
1	H.R. DENSITY	6 - 97	1k CPS	1 SEC Am 241	0.3 lb.
2	δ δ DENSITY	6 - 97	3k CPS	1 SEC Ro 226	12.0 lb.
3	NEUTRON	6 - 97	1k CPS	1 SEC Am-Bg	12.0 lb.
	RESISTIVITY	-		JL	
	SPONTANEOUS POTENTIAL	-		MV	
4	TEMPERATURE	44 - 97	5 °F		
4	FLUID CONDUCTIVITY	44 - 97	50 ΩM		
	SONIC	-	W/H	2.0 FT.	
	OTHER	-			

NOTES: DATUM IS TOP OF CASING

H.R. DENSITY CALIBRATION g/cc
6 10 20 30 40 50 60 70 80 90 100
2.7 2.6 2.5 3 2.2 2.1 2.0 1.9 1.8 1.7 1.6 1.5 1.4

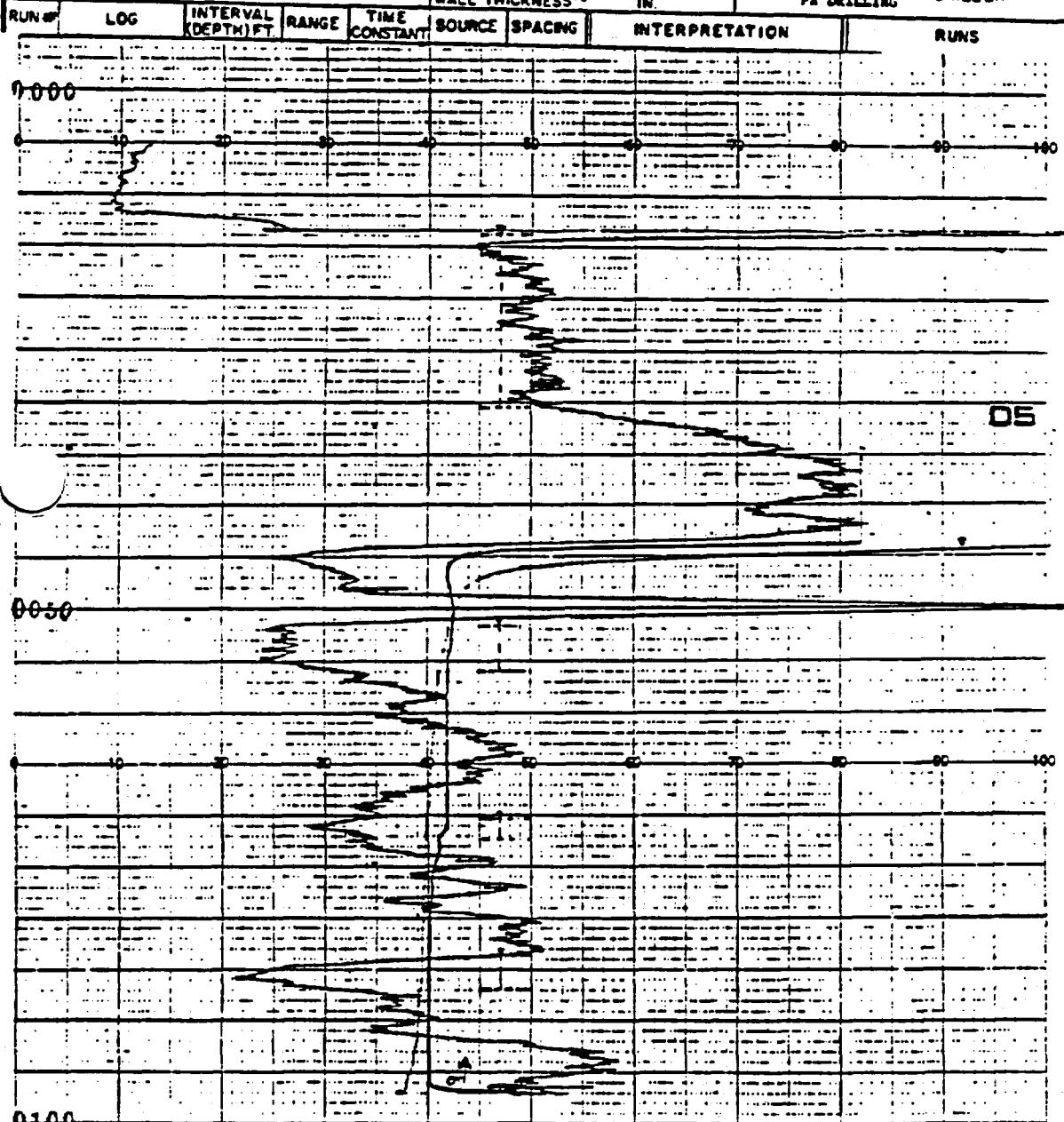
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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
MW-3D
PAGE 2 OF 4

COMPANY ICF/ERW	LOCATION	UNIT	61 OFFICE	Pgh
PROJECT 20377-012-00	HOLE NO. MW-3D	OPERATOR CBC		
CLIENT REPRESENTATIVE E. Brown	COUNTY LAMBERT	STATE PA	DATE 23-APR-88	
DRILLED DEPTH 100 FT	ELEVATION . FT.	CASING DEPTH 97 FT	DRILLING FLUID AIR	
MOLE DIAMETER 6.0 IN. WATER LEVEL 64 FT.	DIA. FACTOR 87	WALL THICKNESS 6.0 IN.	DRILLING CO. PA DRILLING	DRILLER



O NEUTRON CPS (SUBMERGED) 1K
O NEUTRON CPS (DRY) 2.5K
NEUTRON TDRX (DRYDED) 1K
Rad Curve
FLUID CONDUCTIVITY
0 2 5 10 20 50 OHM-METERS
50-FT TEMPERATURE (BLACK LINE)
TOTAL DEPTH 100 FT FEET

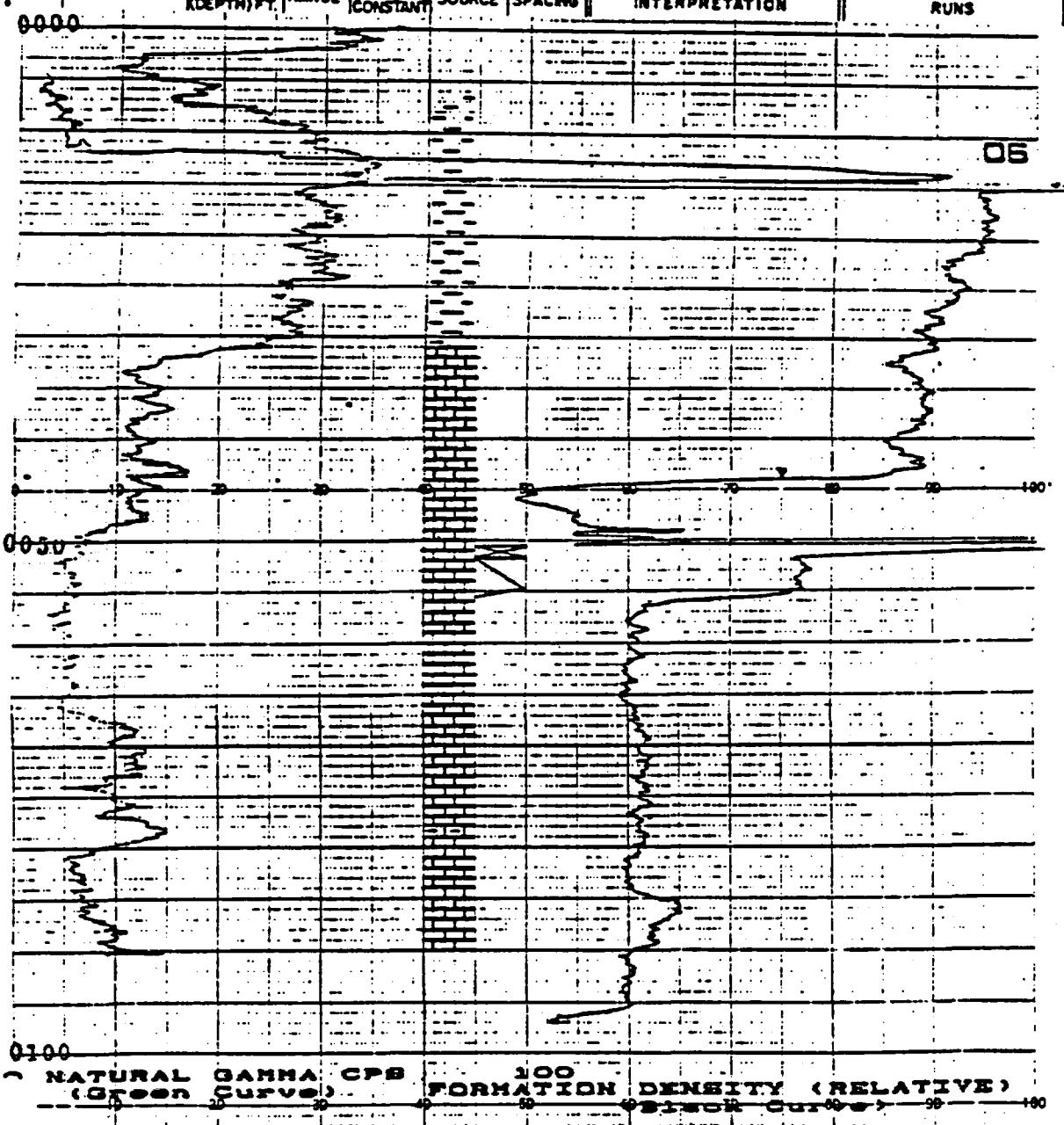
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AR301105

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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
MW-3D
PAGE 3 OF 4

COMPANY ICP/SRV	LOCATION	UNIT	61 OFFICE	PDA
PROJECT 30527-012-00 HOLE NO. MW-3D			OPERATOR CRC	
CLIENT REPRESENTATIVE E. Brown	COUNTY Ligonier	STATE PA	DATE 13-APR-88	
DRILLED DEPTH 300 FT. ELEVATION FT.	CASING DEPTH FT.			
HOLE DIAMETER 8.0 IN. WATER LEVEL 64 FT	DIA. 6.0 IN. FACTOR .97	WALL THICKNESS IN.	DRILLING FLUID AIR	
RUN # LOG KDEPTH(FT)	RANGE TIME CONSTANT	SOURCE SPACING	DRILLING CO. PA DRILLING	DRILLER.



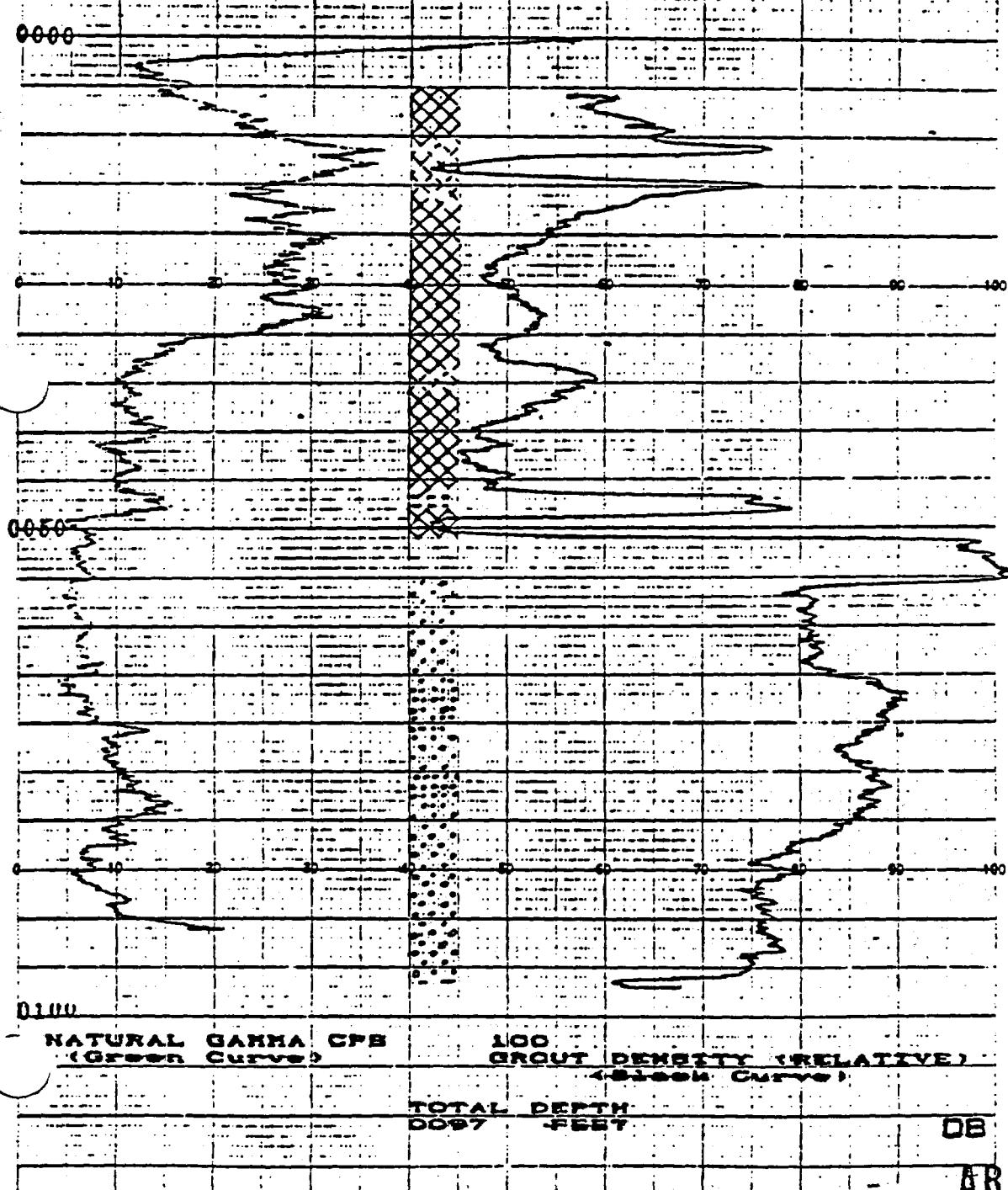
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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
MW-3D
PAGE 4 OF 4

COMPANY ICF/SRV	LOCATION	UNIT	61 OFFICE	PBB			
PROJECT 30527-012-HOLE NO. MW-3D		OPERATOR CBC					
CLIENT REPRESENTATIVE E. Brown	COUNTY Ligon	STATE PA	DATE 13-APR-68				
DRILLED DEPTH 100 FT. ELEVATION 44 FT.	CASING DEPTH 97 FT	DIA. & D. IN. FACTOR .87	DRILLING FLUID AIR				
HOLE DIAMETER 6.0 IN. WATER LEVEL 44 FT.	WALL THICKNESS 3/8 IN.	DRILLING CO. SKILLING DRILLER					
RUN #	LOG	INTERVAL (DEPTH) FT	RANGE	TIME CONSTANT	SOURCE SPACING	INTERPRETATION	RUNS



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APPALACHIAN SURVEYS COAL

LOG HEADING
HOLE NO.
NW - 4
PAGE 1 OF 4

COMPANY ICF/SAR	LOCATION.			UNIT	61 OFFICE	Pgh
PROJECT 30327-012-HOLE NO. NW-4	COUNTY	STATE	PA	OPERATOR CBC	DATE 12-Apr-86	
CLIENT REPRESENTATIVE E. Brooks	Lakehigh					
DRILLED DEPTH 75 FT. ELEVATION	FT.	CASING DEPTH	67 FT.	DRILLING FLUID AIR		
HOLE DIAMETER 8.0 IN.	WATER LEVEL 39 FT.	DIA. FACTOR 4.0	WALL THICKNESS 3/8 IN.	DRILLING CONTRACTING DRILLER		
RUN #	LOG	INTERVAL (DEPTH) FT.	RANGE	TIME CONSTANT	SOURCE SPACING	INTERPRETATION
CALIPER	-	in				COAL < 10% ASH
NATURAL	0 - 61	100 CPS	2 SEC	NATURAL		COAL > 10% ASH
1 H.R. DENSITY	6 - 67	1k CPS	1 SEC	Am 241	0.5 1a.	BONE / CARBONACEOUS SHALE > 50% ASH
2 Ø Ø DENSITY	6 - 67	3k CPS	1 SEC	Ro 226	12.0 1a.	FRECLAY / HOT SHALE
3 NEUTRON	6 - 67	1k CPS	1 SEC	Am-Bø	12.0 1a.	LIMESTONE / OTHER CARBONATE
RESISTIVITY	-		JL			SANDSTONE
SPONTANEOUS POTENTIAL	-	MV				SILTY SANDSTONE
4 TEMPERATURE	39 - 67	5 °F				SHALE / CLAYSTONE
4 FLUID CONDUCTIVITY	39 - 67	50 Ω.M				SANDY SHALE / SILTSTONE
SONIC	-	us/in				GROUNDWATER INFLOW
OTHER	-					GROUNDWATER OUTFLOW

NOTES: DATUM IS TOP OF CASING

H.R. DENSITY CALIBRATION 8/86

73 22 21 20 19 18 17 16 15 14

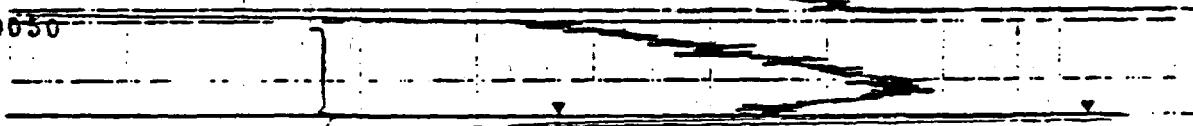
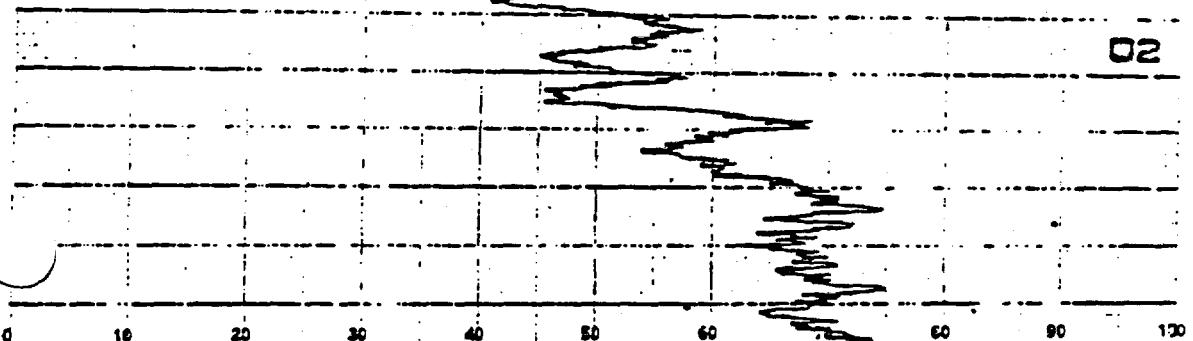
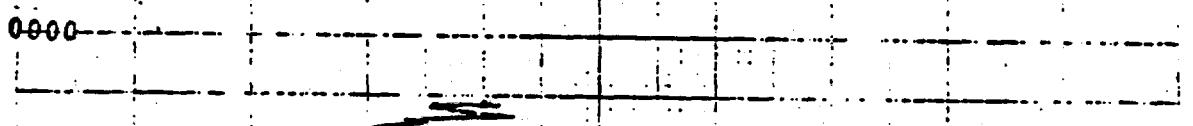
AR301108

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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
MW - 4
PAGE 2 OF 4

COMPANY ICF/SIV	LOCATION	UNIT	61 OFFICE	PEN
PROJECT 30327-012-HOLE NO. MW-4		OPERATOR CBC		
CLIENT REPRESENTATIVE E. Brown	COUNTY Ligonier STATE PA		DATE 12-APR-88	
DRILLED DEPTH 73 FT. ELEVATION 87 FT.	CASING DEPTH 67 FT.		DRILLING FLUID AIR	
HOLE DIAMETER 6.0 IN. WATER LEVEL 84 FT.	DIA METER 6.0 IN. FACTOR 87 SVC		DRILLING CO. DRILLING DRILLER	
	WALL THICKNESS IN.			

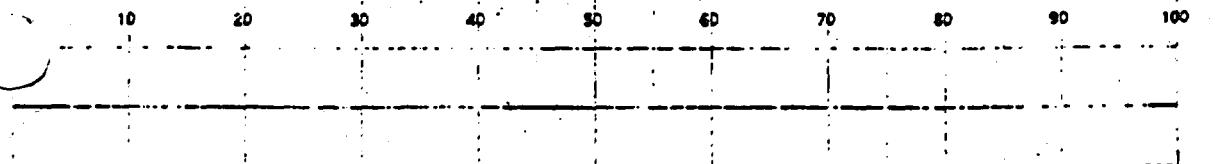


0 NEUTRON CPS (SUBMERGED) 1K
0 NEUTRON CPS (DRY) 2.0K
0 NEUTRON (DRY, GROUTED) 1K
(Red Curve)

FLUID CONDUCTIVITY
1 : 2 : 5 : 10 : 20 : 50 OHM-METERS
(Black Line)

SOPF TEMPERATURE
(Green Line) 60° F

TOTAL DEPTH
0067 FEET



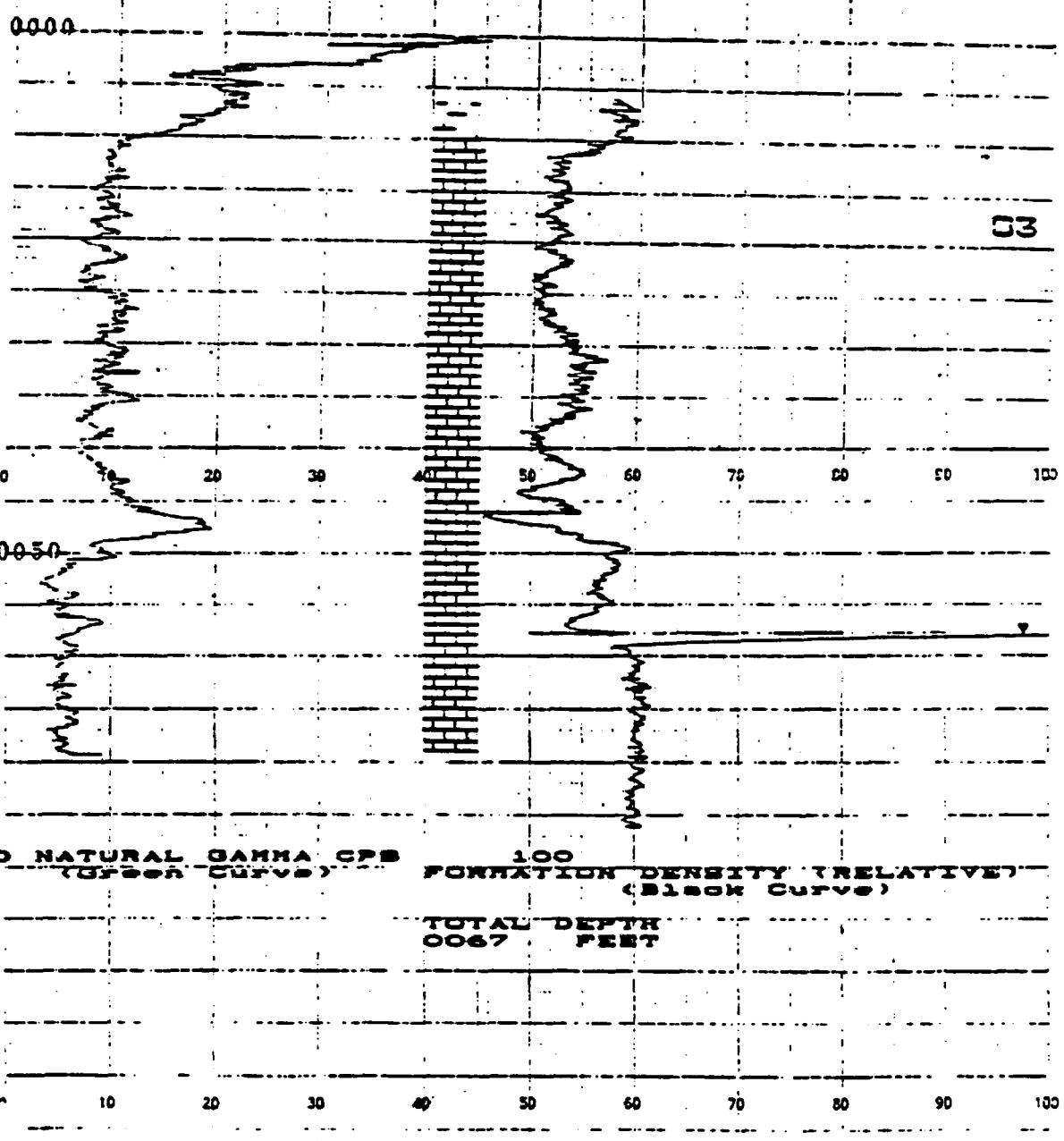
AR301109

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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
EW-4
PAGE 3 OF 4

COMPANY ICP/SW	LOCATION	UNIT	61 OFFICE	PON
PROJECT 30527-012-HOLE NO. EW-4		OPERATOR CBC		
CLIENT REPRESENTATIVE E. Brown	COUNTY Ligon STATE PA		DATE 12-APR-88	
DRILLED DEPTH 73 FT. ELEVATION FT.	CASING DEPTH FT.	DIA. 4.0 IN. FACTOR 67	DRILLING FLUID AIR	
HOLE DIAMETER 8.0 IN. WATER LEVEL 58 FT.	DIA. 4.0 IN. FACTOR 67	WALL THICKNESS 1/8 IN.	DRILLING CO. A DRILLING DRILLER	



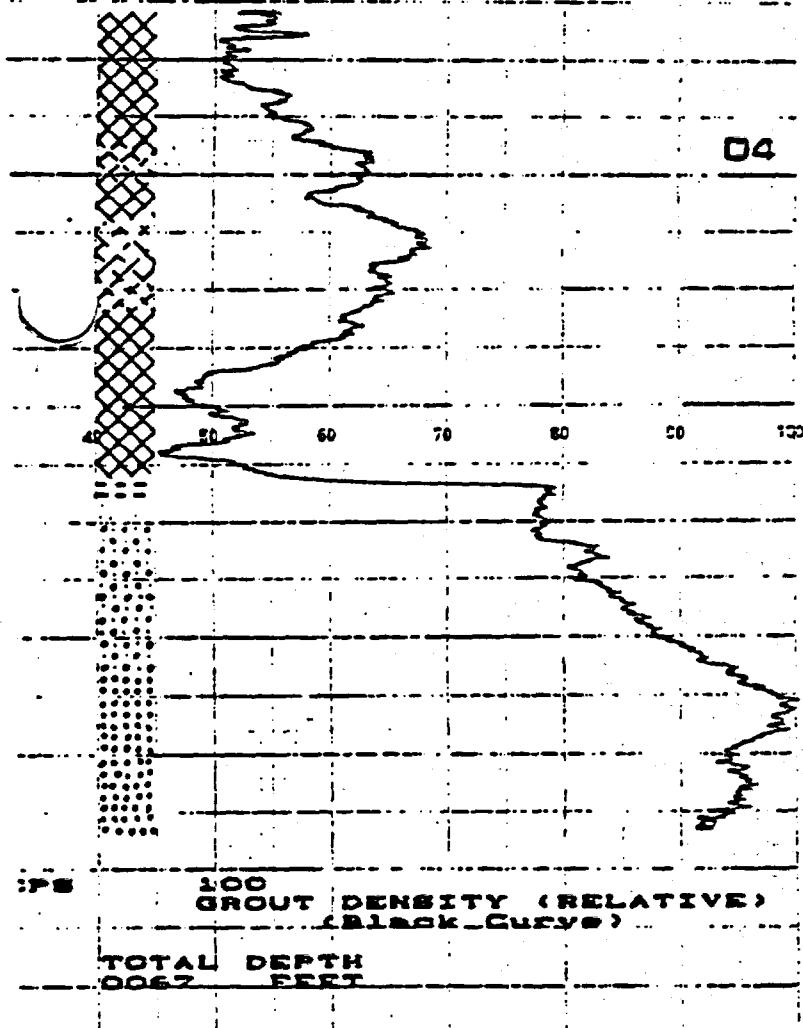
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LOG HEADING

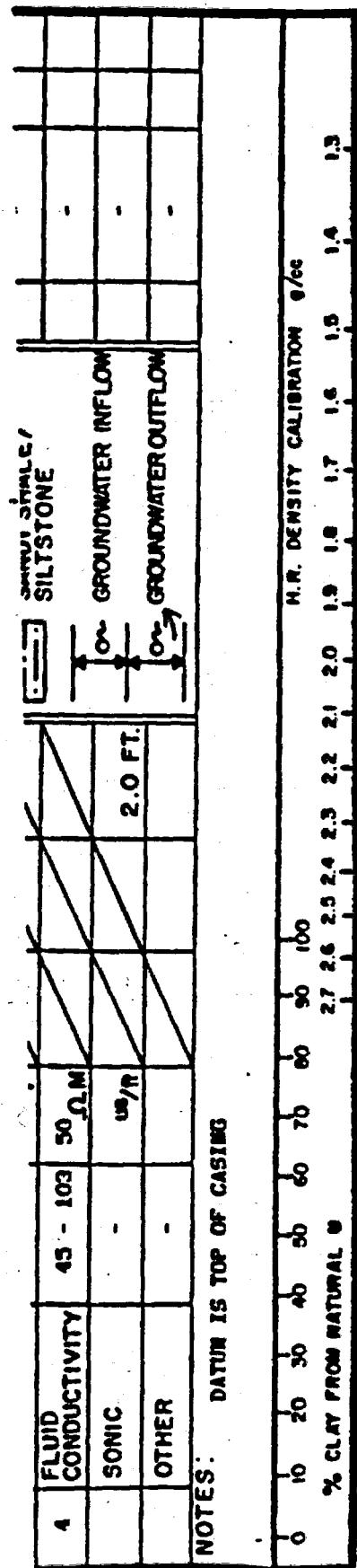
**MOLE NO.
MW - 4
PAGE 4 OF 4**

LOCATION	UNIT	61 OFFICE	PEN
1-6	OPERATOR	CBC	
COUNTY Lancaster	STATE	DATE 12-APR-88	
FT CASING DEPTH	67 FT.	DRILLING FLUID	AIR
L FT. DIAMETER 4.0 IN. FACTOR	67	DRILLING CO.	DRILLER
S IN. WALL THICKNESS	IN.	DRILLING	CO.



**100 GROUT DENSITY (RELATIVE)
(BLACK CURE?)**

TOTAL DEPTH
0067 FEET



NOTES: DATUM IS TOP OF CASING

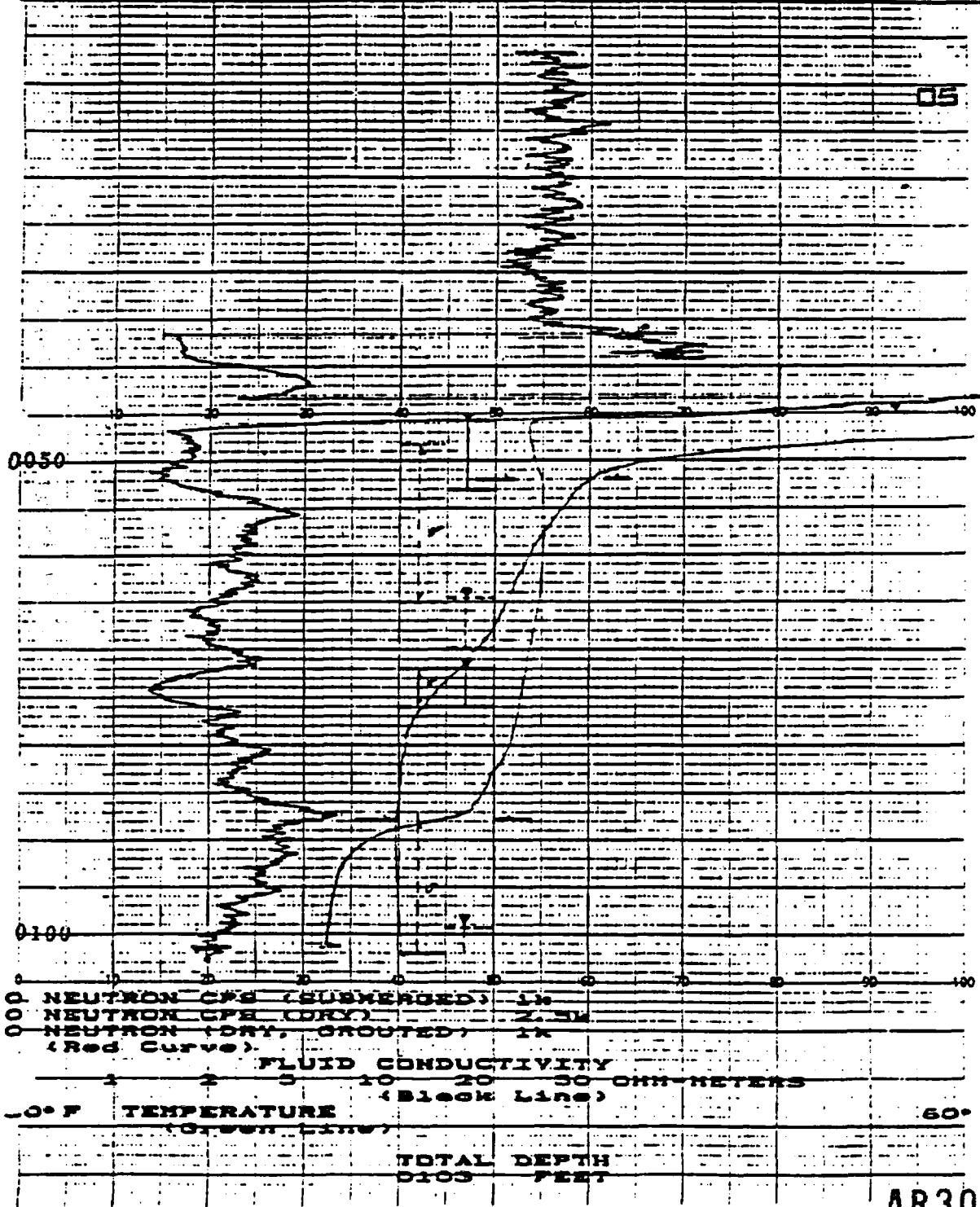
AR30111

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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
MW-3D
PAGE 2 OF 4

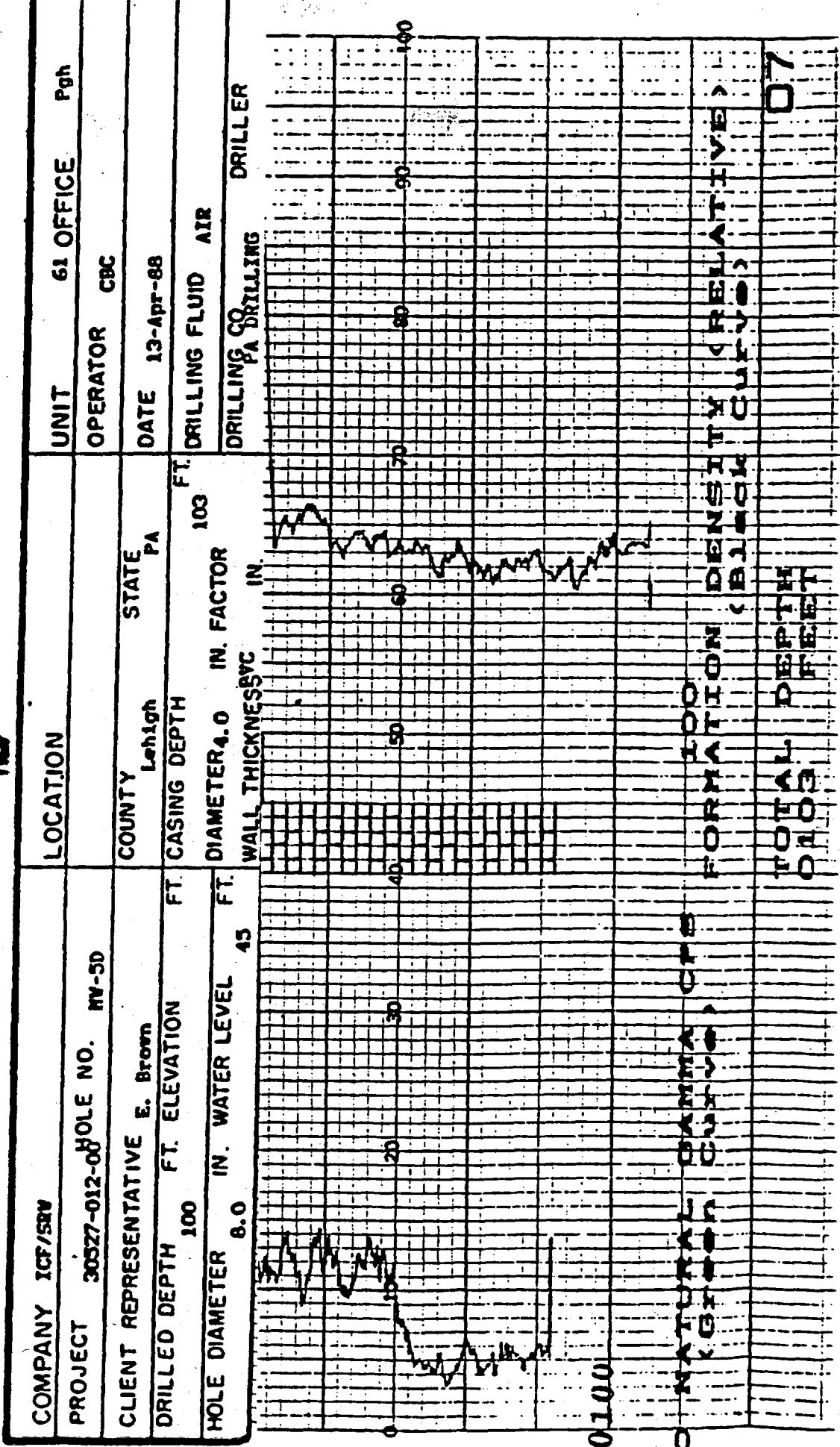
COMPANY ICP/SBV	LOCATION	UNIT	61 OFFICE	PDA
PROJECT 30527-012-00	HOLE NO. MW-3D	OPERATOR CBC		
CLIENT REPRESENTATIVE E. Brown	COUNTY LARSEN STATE PA	DATE 13-APR-68		
DRILLED DEPTH 100 FT. ELEVATION 100 FT.	CASING DEPTH 100 FT.	DRILLING FLUID AIR		
HOLE DIAMETER 6.0 IN. WATER LEVEL 43 FT.	DIAMETER 6.0 IN. FACTOR 100 WALL THICKNESS 5/8 IN.	DRILLING CO. PA DRILLING DRILLER		



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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
MW - 5D
PAGE 3 OF 4

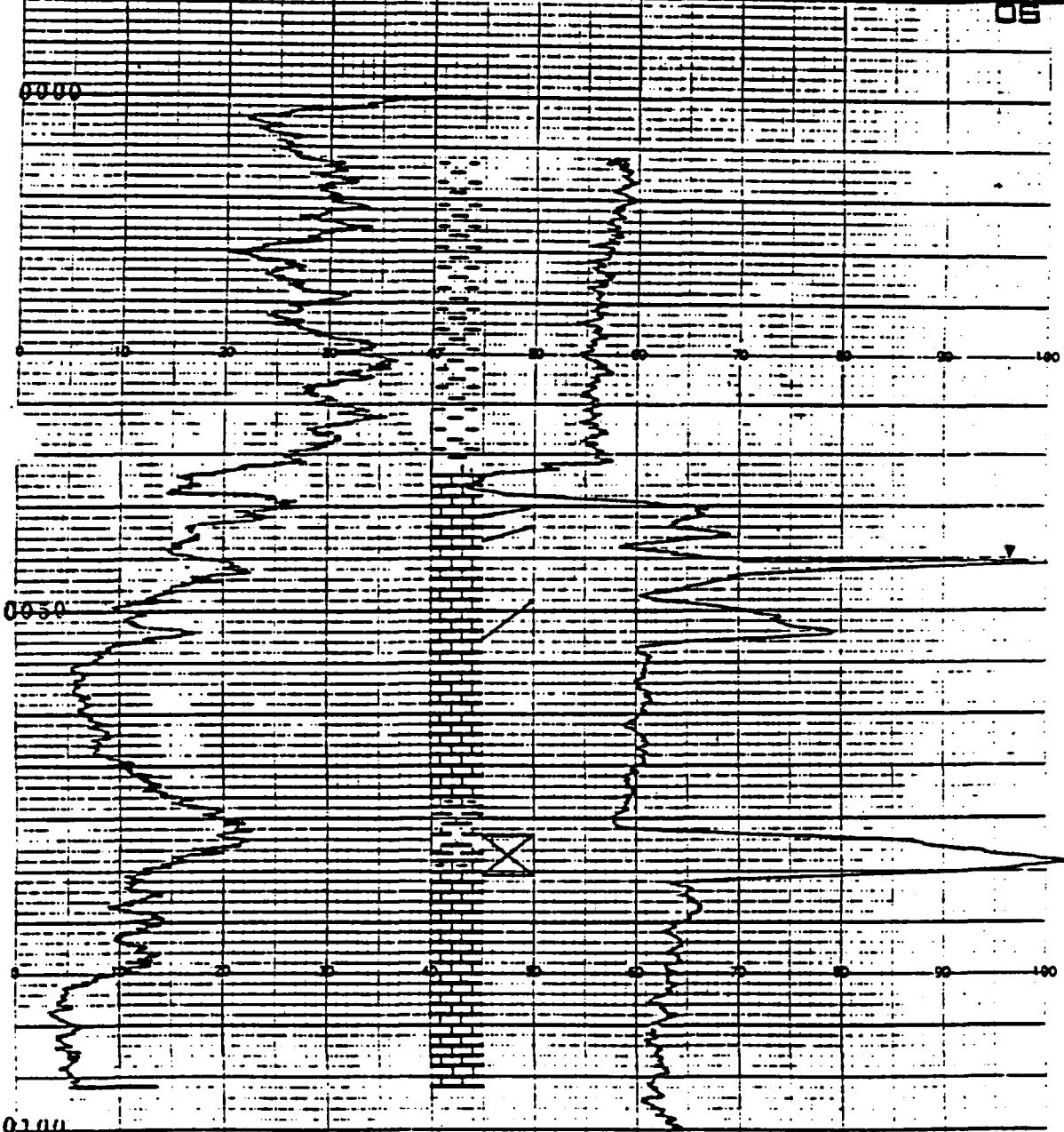


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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
MW-5D
PAGE 3 OF 4

COMPANY ICP/SIN	LOCATION	UNIT	61 OFFICE	Pgh
PROJECT 30527-012-00 HOLE NO. MW-5D		OPERATOR	CBC	
CLIENT REPRESENTATIVE E. Brown	COUNTY Lawrence	STATE	PA	DATE 13-APR-88
DRILLED DEPTH 100 FT. ELEVATION 100 FT.	CASING DEPTH 103 FT.	DIAMETER	4.0 IN.	DRILLING FLUID AIR
HOLE DIAMETER 8.0 IN. WATER LEVEL 45 FT.	FACTOR 1.0	WALL THICKNESS	3/8 IN.	DRILLING CO. PA DRILLING DRILLER



NATURAL GAMMA (cps) FORMATION DENSITY (RELATIVE)
(Green Curve) (Black Curve)

TOTAL DEPTH 100 FT. 07
0103 FEET

AR301114

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APPALACHIAN COAL SURVEYS

LOG HEADING
MOLE NO.
PSW-6
PAGE 2 OF 4

TEXAS INSTRUMENTS INCORPORATED

COMPANY ICF/SRI	LOCATION	UNIT	61 OFFICE	Pgh
PROJECT 30327-012-00 MOLE NO. PSW-6		OPERATOR CBC		
CLIENT REPRESENTATIVE E. Brown	COUNTY Ligonier STATE PA	DATE 13-APR-88		
DRILLED DEPTH 100 FT. ELEVATION FT.	CASING DEPTH 99 FT	DRILLING FLUID AIR		
MOLE DIAMETER 6.0 IN. WATER LEVEL 41 FT.	DIA. 6.0 IN. FACTOR PVC	DRILLING DRILLER		
0.000				
0.050				
0.100				
0.150				
0.200				
0.250				
0.300				
0.350				
0.400				
0.450				
0.500				
0.550				
0.600				
0.650				
0.700				
0.750				
0.800				
0.850				
0.900				
0.950				
1.000	NEUTRON CPS (SUBMERGED) 1K NEUTRON CPS (DRY) 2.5K NEUTRON (DRY, DROPPED) 2K (Rod Curve)	FLUID CONDUCTIVITY		
1.050	2 5 10 20 30 40 50 OHMMETERS (Black Line)			
1.100	50°F TEMPERATURE (Green Line)			
1.150	TOTAL DEPTH FEET			
1.200	0000			

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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
NW-6
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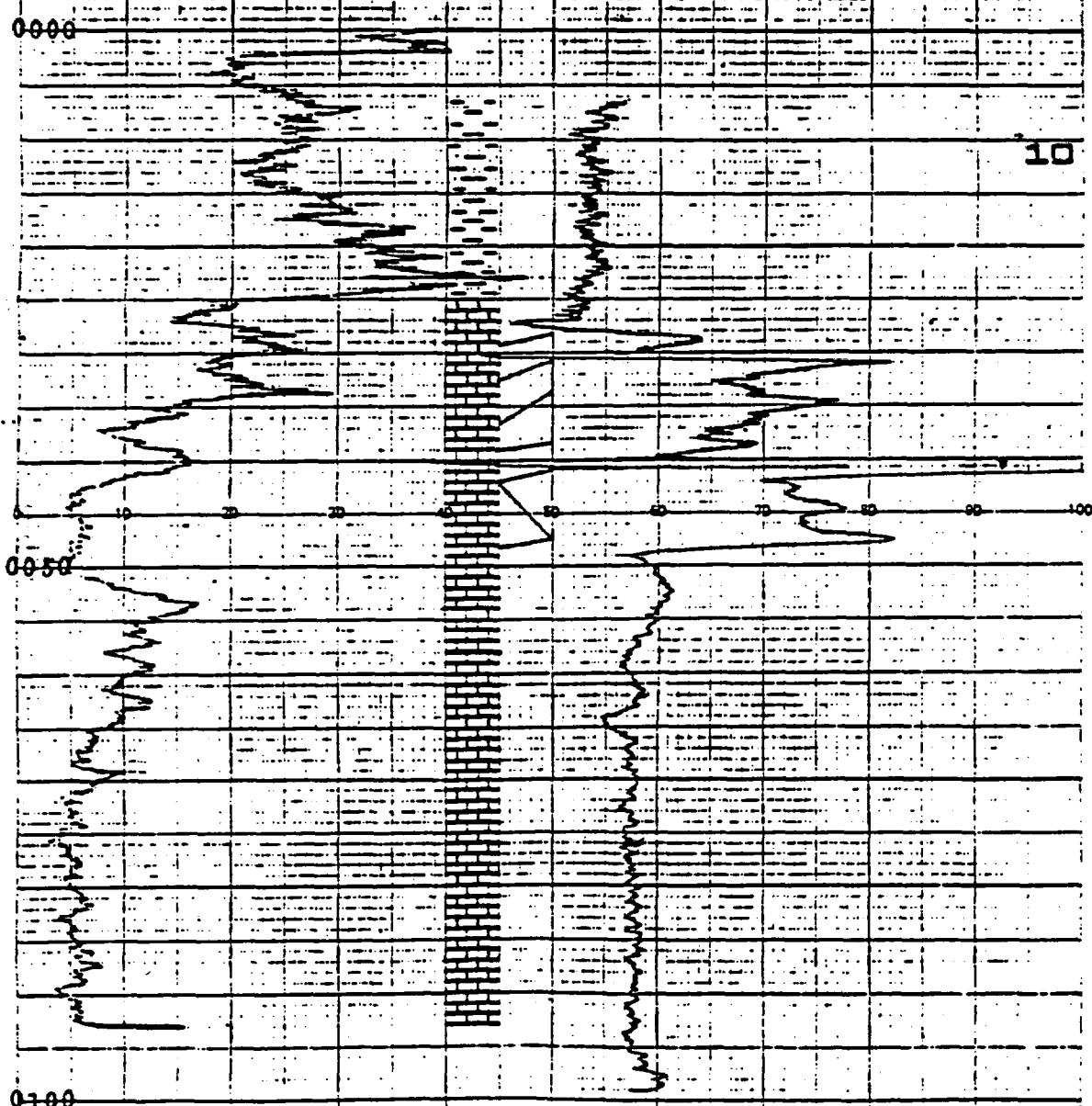
COMPANY ICP/SIN	LOCATION	UNIT	61 OFFICE	PGB
PROJECT 30327-012-HOLE NO. NW-6			OPERATOR CBC	
CLIENT REPRESENTATIVE E. Brown	COUNTY Latrigg	STATE PA	DATE 13-Apr-88	
DRILLED DEPTH 100 FT. ELEVATION	FT. CASING DEPTH	99 FT	DRILLING FLUID AIR	
HOLE DIAMETER 6.0 IN. WATER LEVEL 48 FT	DIA. FACTOR 0.95		DRILLING DRILLING DRILLER	

TEXAS INSTRUM

CHART NO. NW-6

100' DEPTHS, TEXAS, U.S.A.

TEXAS INSTRUMENTS INC.



0 NATURAL DAWNA CPS 100 FORMATION DENSITY (RELATIVE)
0 (Green Survey) 200 Block Curves 100
TOTAL DEPTH 0099 FEET

AR301116

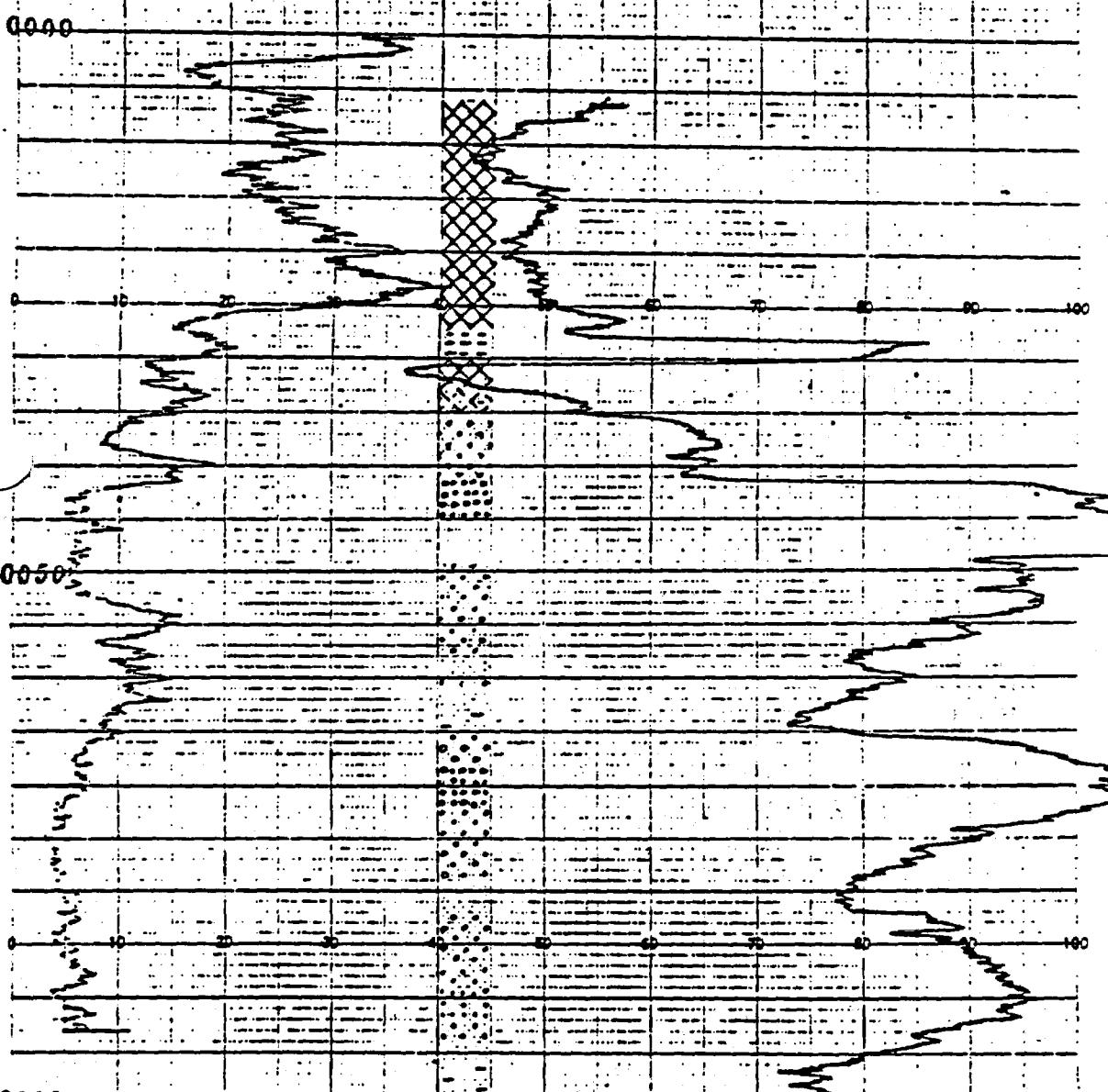
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APPALACHIAN COAL SURVEYS

LOG HEADING

HOLE NO.
MW-6
PAGE 4 OF 4

COMPANY ICF/SM	LOCATION	UNIT	E1 OFFICE	Pgh
PROJECT 30527-012-HOLE NO. MW-6		OPERATOR CRC		
CLIENT REPRESENTATIVE E. Brown	COUNTY Ligonier STATE PA		DATE 13-APR-88	
DRILLED DEPTH 100 FT. ELEVATION 41 FT.	CASING DEPTH 99 FT		DRILLING FLUID AIR	
HOLE DIAMETER 6.0 IN. WATER LEVEL 41 FT.	DIA. FACTOR 1.0 WALL THICKNESS .25 IN.		DRILLING CO. DRILLER	



NATURAL GAMMA CPS (GREEN CURVE)	100 GROUT DENSITY (RELATIVE) (BLACK CURVE)	TOTAL DEPTH DOZ FEET	12

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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
MW - 7D
PAGE 1 OF 4

COMPANY	ICP/SBM	LOCATION		UNIT	61 OFFICE	Pgh
PROJECT	30327-012-HOLE NO.	STATE	OPERATOR	CBC		
CLIENT	REPRESENTATIVE	E. Brooks	COUNTY	Lehigh	DATE	12-Apr-88
DRILLED DEPTH	100 FT. ELEVATION	FT.	CASING DEPTH	99 FT.	DRILLING FLUID	AIR
HOLE DIAMETER	6.0 IN. WATER LEVEL	57 FT	DIAMETER	4.0 IN. FACTOR	WALL THICKNESS	4 IN.
RUN #	LOG	INTERVAL (DEPTH) FT.	RANGE	TIME CONSTANT	SOURCE	SPACING
CALIPER	-	1% in				
NATURAL	0 - 99	1K CPS	2 SEC	NATURAL		
1 H.R. DENSITY	6 - 99	1K CPS	1 SEC	AM 241	0.5 in.	
2 Ø DENSITY	6 - 99	3K CPS	1 SEC	RO 226	12.0 in.	
3 NEUTRON	6 - 99	1K CPS	1 SEC	Am-Bg	12.0 in.	
RESISTIVITY	-					
SPONTANEOUS POTENTIAL	-					
4 TEMPERATURE	57 - 99	5 °F				
FLUID CONDUCTIVITY	57 - 99	50 U.M				
SONIC	-	us/in				
OTHER	-					
NOTES: DATUM IS TOP OF CASING						
(% CLAY FROM NATURAL)						
10	20	30	40	50	60	70
2.7	2.6	2.5	2.4	2.3	2.2	2.1
100	100	100	100	100	100	100
1.5	1.6	1.7	1.8	1.9	1.0	1.1
1.4	1.5	1.6	1.7	1.8	1.9	1.0
H.R. DENSITY CALIBRATION 8/66						
10	20	30	40	50	60	70
2.7	2.6	2.5	2.4	2.3	2.2	2.1
100	100	100	100	100	100	100
1.5	1.6	1.7	1.8	1.9	1.0	1.1
1.4	1.5	1.6	1.7	1.8	1.9	1.0

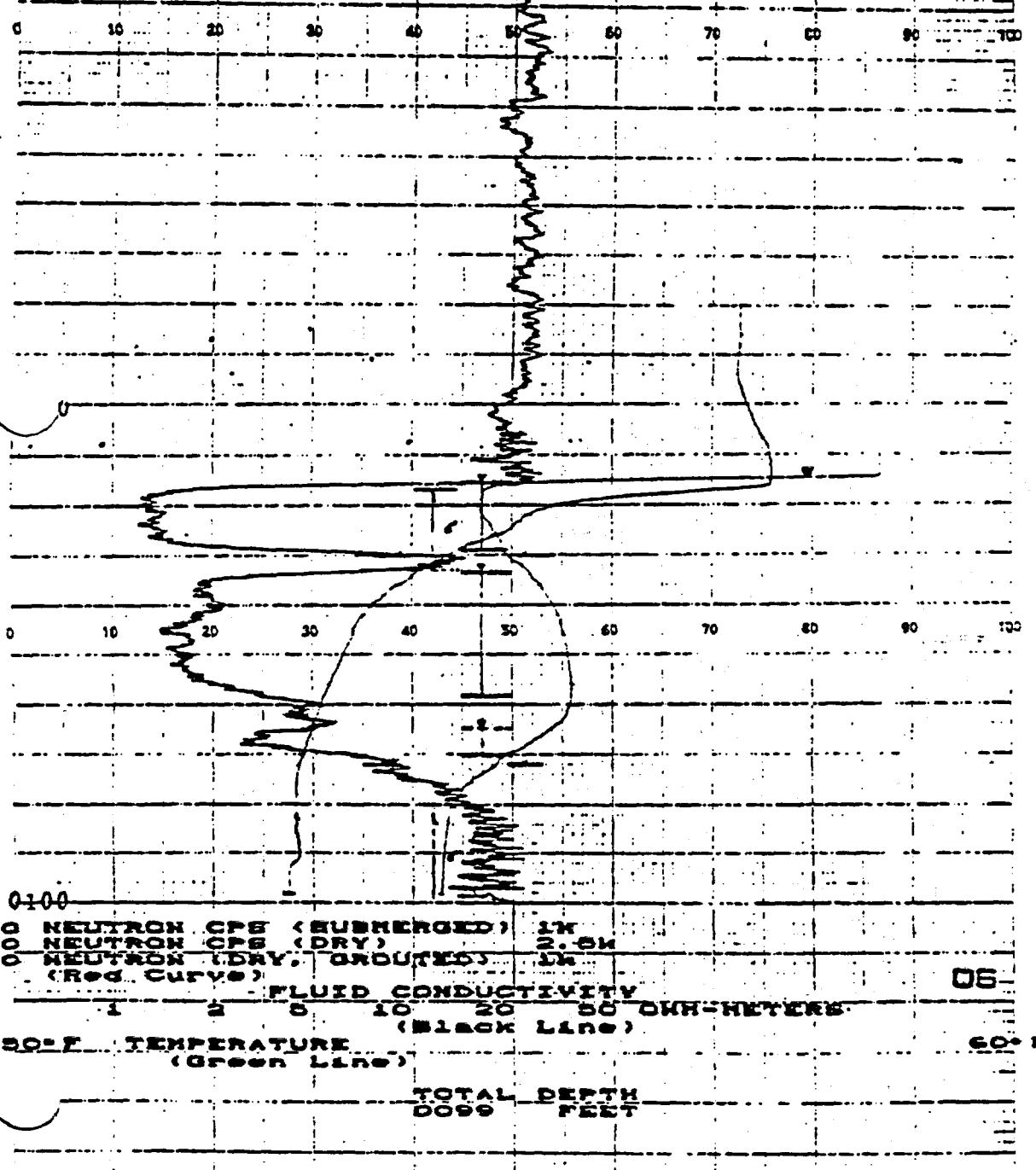
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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
MW-7D
PAGE 2 OF 4

COMPANY ICF/SRY	LOCATION	UNIT	61 OFFICE	Pgh
PROJECT 30027-012-00 HOLE NO. 8V-7D		OPERATOR	CBC	
CLIENT REPRESENTATIVE E. Brown	COUNTY Lorain	STATE PA	DATE	12-APR-84
DRILLED DEPTH 100 FT. ELEVATION FT.	CASING DEPTH	99 FT.	DRILLING FLUID	AIR
HOLE DIAMETER 8.0 IN. WATER LEVEL FT.	DIAHETER 4.6 IN. FACTOR .59	WALL THICKNESS IN.	DRILLING CO.	DRILLER
87			PA DRILLING	



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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO. **MW-7D**
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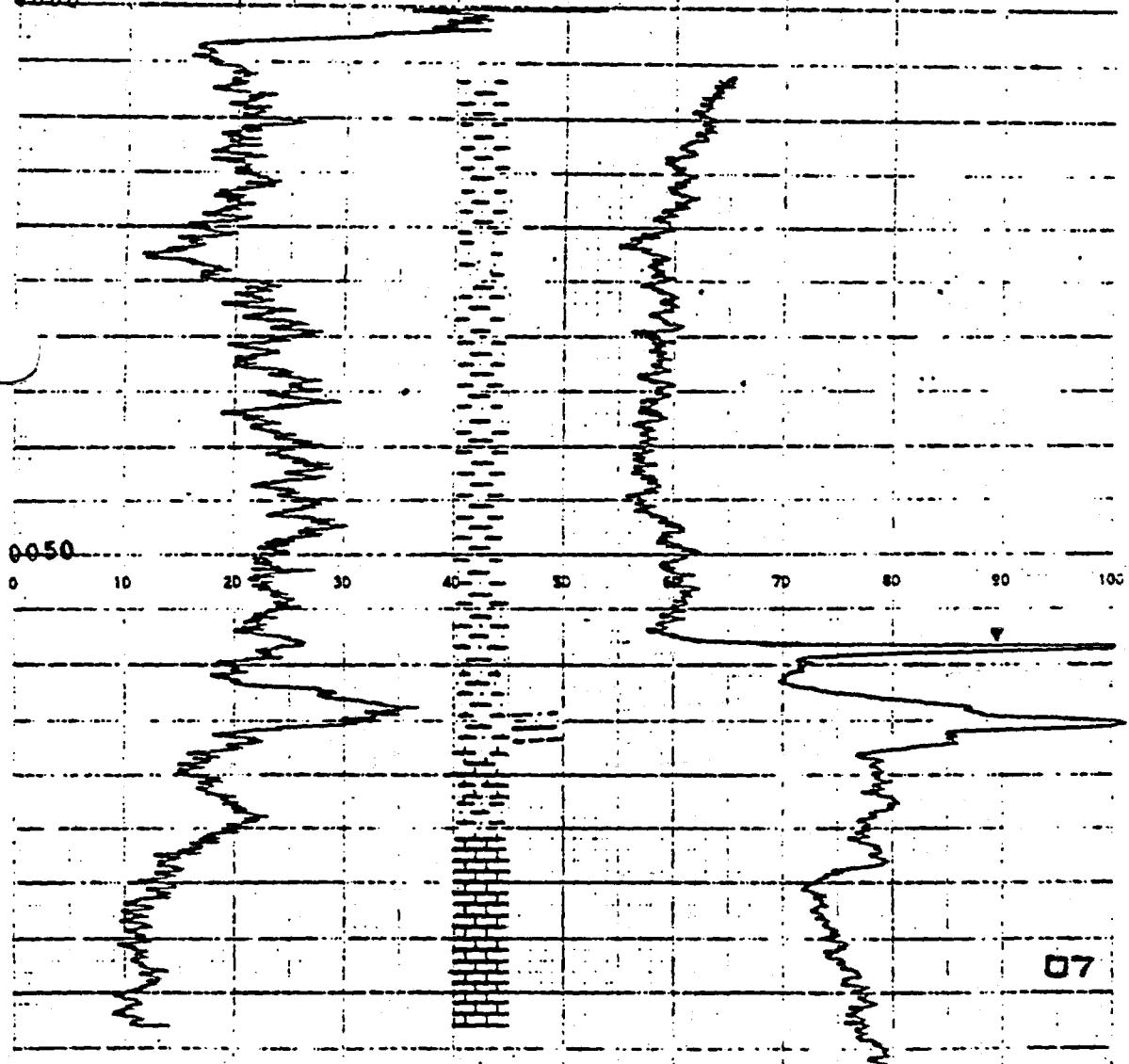
APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
MW-7D
PAGE 3 OF 4

COMPANY ICF/ERV	LOCATION	UNIT	EL OFFICE	Fch
PROJECT 20327-012-0 HOLE NO. MW-7D		OPERATOR CRC		
CLIENT REPRESENTATIVE E. Brown	COUNTY Ligonier	STATE PA	DATE 12-4-88	
DRILLED DEPTH 100 FT. ELEVATION	FT.	CASING DEPTH 99 FT.	DRILLING FLUID AIR	
HOLE DIAMETER 6.0 IN. WATER LEVEL 37 FT.		DIA. 6.0 IN. FACTOR .85	DRILLING CO. PA DRILLING	DRILLER
WALL THICKNESS 5/8 IN.				

0 10 20 30 40 50 60 70 80 90 100

0000



NATURAL GAMMA CPS (GREEN CURVE) FORMATION DENSITY (RELATIVE) (BLACK CURVE)

TOTAL DEPTH DOORS FEET

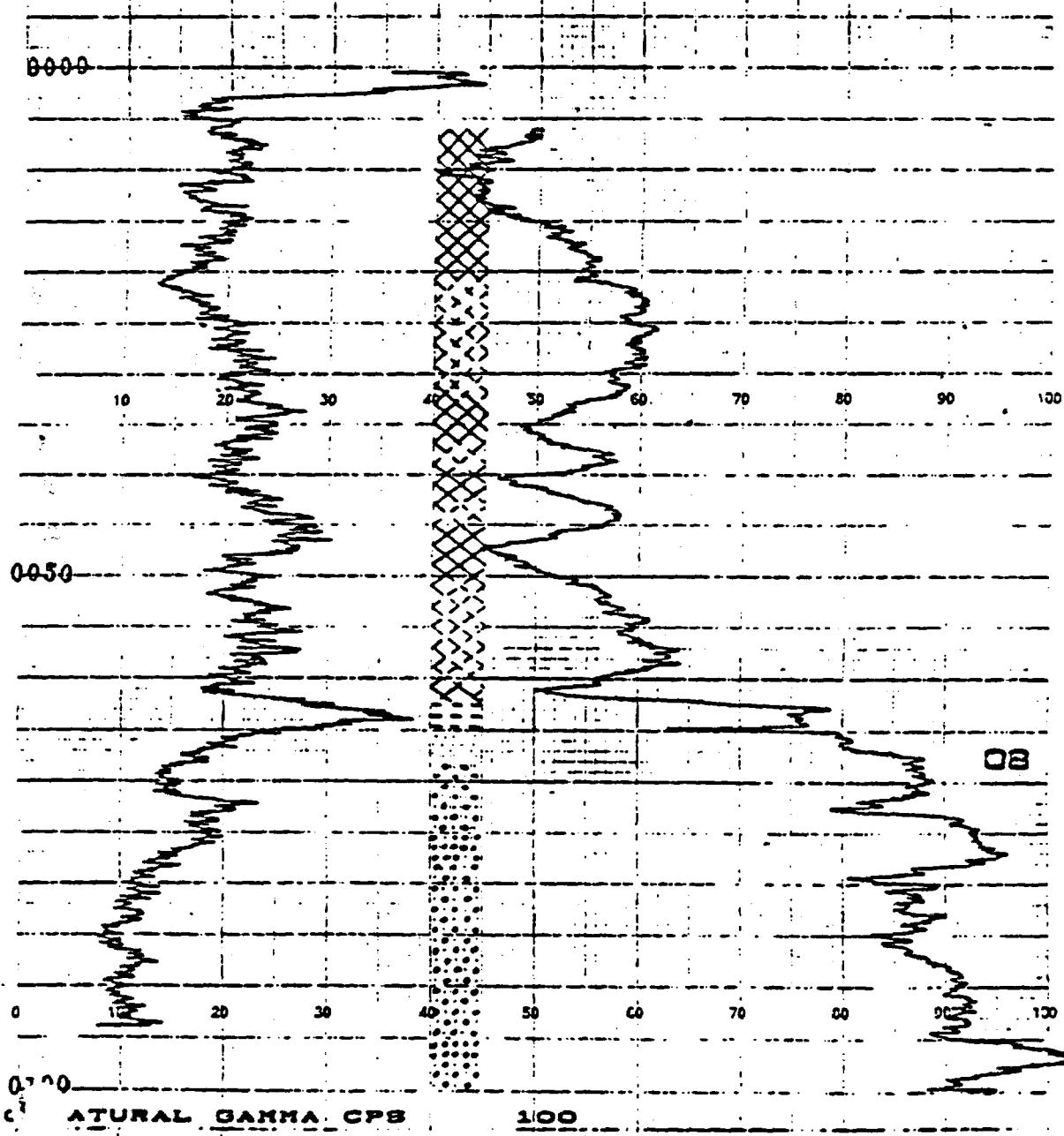
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APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
EW-7D
PAGE 4 OF 4

COMPANY ICP/SW	LOCATION	UNIT	MAIL OFFICE	PER
PROJECT 30527-012-HOLE NO. EW-7D			OPERATOR / CIC	
CLIENT REPRESENTATIVE E. Brown	COUNTY LARSEN	STATE PA	DATE 12-ADP-88	
DRILLED DEPTH 100 FT. ELEVATION FT.	CASING DEPTH 99 FT.		DRILLING FLUID AIR	
HOLE DIAMETER 8.0 IN. WATER LEVEL 57 FT.	DIAMETER 8.0 IN. FACTOR 99	WALL THICKNESS 5/8 IN.	DRILLING CO. A DRILLING	DRILLER



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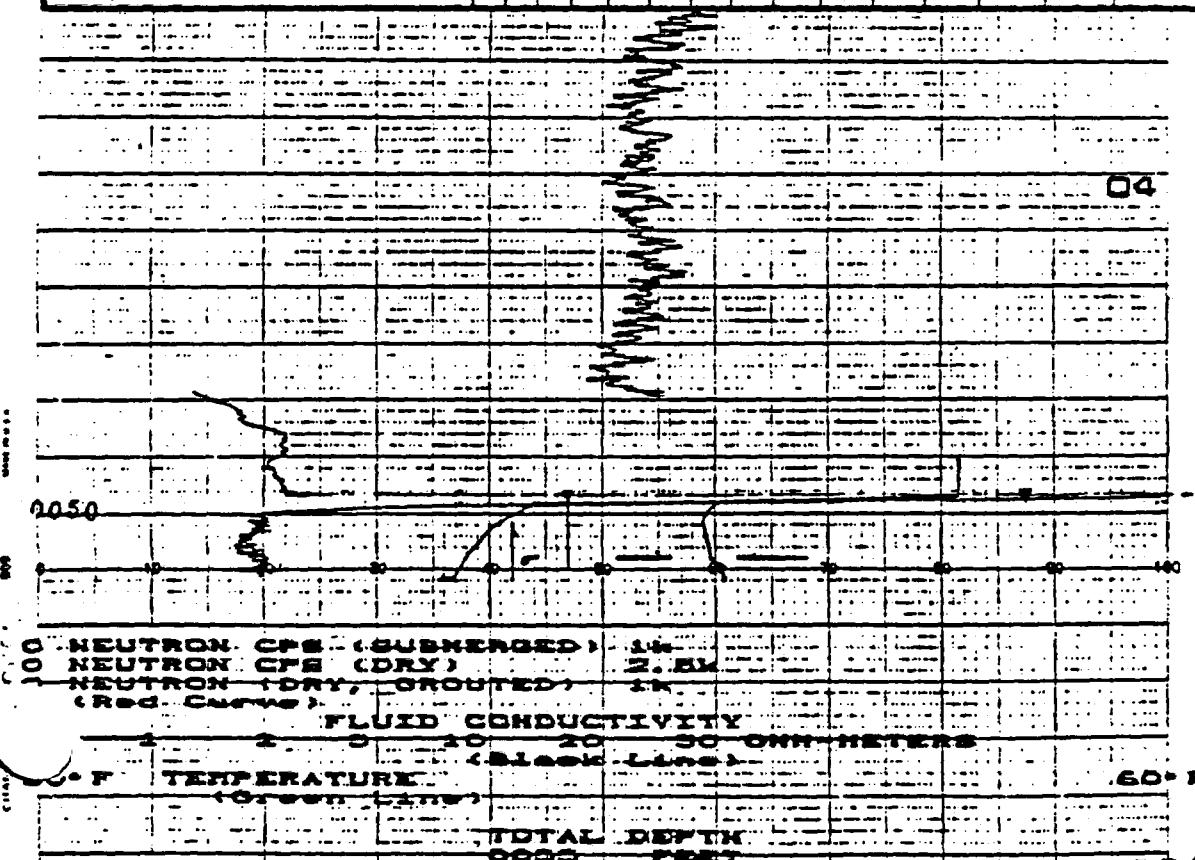
APPALACHIAN COAL SURVEYS

LOG HEADING
HOLE NO.
MW - 78
PAGE 1 OF 1

COMPANY ICF/SRY		LOCATION		UNIT	OFFICE	PA		
PROJECT 30327-012-00	HOLE NO. MW-78			OPERATOR CRC				
CLIENT REPRESENTATIVE E. Brown		COUNTY Ligon	STATE PA	DATE 13-APR-88				
DRILLED DEPTH 85 FT. ELEVATION FT.		CASING DEPTH FT.		DRILLING FLUID AIR				
HOLE DIAMETER 6.0 IN. WATER LEVEL 49 FT.	DIA. 6.0 IN. FACTOR 55	DIA. 6.0 IN. FACTOR 55	WALL THICKNESS IN.	DRILLING CO. PA DRILLING	DRILLER			
RUN #	LOG	INTERVAL (DEPTH) FT.	RANGE	TIME CONSTANT	SOURCE	SPACING	INTERPRETATION	RUNS
CALIPER	-	IN.						
NATURAL	-	CPS	SEC	NATURAL				
M.R. DENSITY	-	CPS	SEC	AM 241	SR.			
DD DENSITY	-	CPS	SEC	RD 226	SR.			
1 NEUTRON	6 - 85	2K CPS	1 SEC	AM-86	12.0 SR.			
RESISTIVITY	-	Ω						
SPONTANEOUS POTENTIAL	-	MV						
2 TEMPERATURE	49 - 85	3 OF						
2 FLUID CONDUCTIVITY	49 - 85	30 ΩM						
SONIC	-	US/FT				2.0 FT.		
OTHER	-							

NOTES: DATUM IS TOP OF CASING

0	10	20	30	40	50	60	70	80	90	100		M.R. DENSITY CALIBRATION 0/SEC	
% CLAY FROM NATURAL %	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5



AR301123